FORM GENERATION THROUGH FILMED REFERENCES:
Charles River Baths

by

William Henderson Sloan Jr.

Bachelor of Environmental Design, University of Kansas 1973

Submitted in Partial Fulfillment
of the Requirements for the
Degree of

MASTER OF ARCHITECTURE

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

June, 1977

Signature of Author _____
Department of Architecture, June 14, 1977

Certified by _____
Maurice Smith, Professor of Architecture

Accepted by _____
Wayne Andersen, Chairman
Departmental Committee for Graduate Students

Abstract

FORM GENERATION THROUGH FILMED REFERENCES: Charles River Baths

By William Henderson Sloan, Jr.

Submitted to the Department of Architecture June 1977 in Partial Fulfillment of the Requirements for the Degree of Master of Architecture.

This thesis attempts to define, and then design a new kind of health facility. Towards this goal, it assembles reference material of a programmatic nature that suggests an exploration of the public bath; and assembles, through the medium of film, formal references in the design of a prototypical bath.

Part One describes present trends in the health field, analyzes two innovative health facilities, then discusses the bath -- present and past -- in the same context of health. Part Two describes the process of designing a public bath. It focuses on the use of film to document existing places, then the filmed references are assembled in the design of a new place. It includes live images and animated drawings from the film that generated the design. Part Three is the resulting design exploration.

Thesis Supervisor: Maurice Smith
Title: Professor of Architecture

TABLE OF CONTENTS

PREFACE

This thesis is an outgrowth of primarily three areas of interest and concern, and attempts to join them in a single exploration. Firstly, it comes from a dissatisfaction with most places designed today, and from a desire to be able to achieve, in the 20th century vocabulary, some of the qualities that are commonly attributed only to acts of God or to people long dead or far removed from the profession of architecture. Secondly, it comes from an introduction to the wholistic attitudes about health, through work experience in the areas of health planning and architecture, and thirdly, it comes from an interest in tools that deal with the dynamic experience -- particularly film. Thus, the purposes of the thesis are:

1. To explore the use of film as a tool to design. What value it has as an analytical tool in documenting places and how that role can expand to a normative one. In particular, how the medium aids in dealing with movement -- the sequential experience, and the non-linear experience.
2. To use that exploration as input into examining health facilities, to project how present trends in the health field could influence the nature of its associated architecture.

INTRODUCTION

The thesis exploration is the design of a health promotion facility -- a projective health facility that is oriented to the promotion of wellness rather than treatment or prevention of illness. But, as a projective piece, it has an inherent problem in that it is responding to needs that are only partly manifest. Certain trends can be observed, certain precursors examined, but the question of "what is a health promotive facility?," or even "Do these trends have any physical ramifications at all?" are major ones.

An exploration is a series of decisions that uses each preceding one as a context. You start out heading west and go from there. If it becomes clear that previous decisions were eroneous or non-productive, it is possible to retrace paths and change earlier decisions, but generally it is best to press on -- the appropriateness of earlier decisions can only be evaluated on their results. So the exploration is to design a health promotive facility and the hope is that the quest turns out better than Ponce de Leon's.

To provide models for the decisions a field of references are examined -- as broad as possible. The references are selected with respect to previous decisions, the initial ones thus come from notions of what health promotion is, or from generalized principles desirable in many situations, subsequent ones from such things as site, program, building systems, etc. The projective building can be seen as an assem-

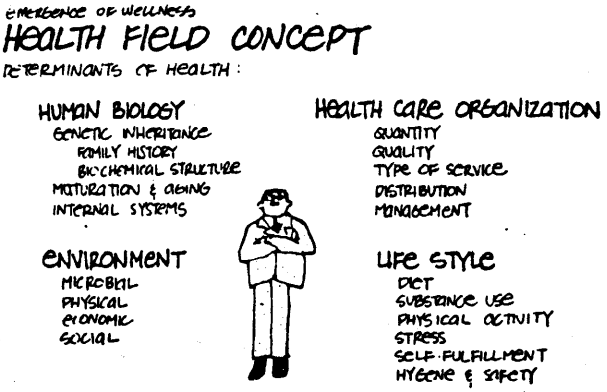
blage of many places, where diversity is a desirable quality, in that the more territory explored, the better.

The film medium was used primarily in documenting those places where the physical form was of primary importance, and a direct analogy of use to the topic design was not literal. From other references it was the use that was extracted most literally; the physical form of the places may have been not of interest or only broadly interpreted. Although there is understandably much overlap and dialogue between these two groups of references, the ensuing discussion of them is broken into two sections -- the assmebly of the programmatic references; and the assembly of the filmed form references. The concluding section then describes the ensuing exploration.

I. PROGRAMMATIC REFERENCES

A. HEALTH PROMOTION

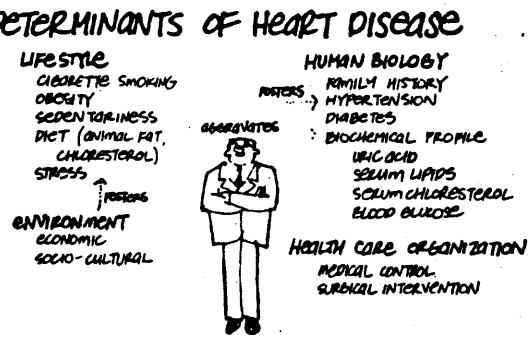
The physical and emotional well-being of an individual can be seen as being the product of a field of inter-releated determinants. This health field concept was outlined in a recent report to the Cana-



dian Ministry of Health & Welfare, emphasing the need for dealing with the whole field, and not, as currently perceived, with primarily health care services.[1] Inherent in this "wholistic" concept of health is an orientation towards promotion of wellness as opposed to the treatment of illness.

The current emphasis on medical care is increasingly less effective. Medical diagnosis and treatment has not had appreciable impact on the major health problems of today -- the chronic conditions such as cancer, diabetes, and vascular disease.[2] Sophisticated technology and its associated rising costs have been returning less and less in dealing with these problems. At the same time we are discovering causal

forces behind these diseases: life style, environment, human biology; and their interaction.[3]



It is these causal factors that need to be addressed, particularly in view of their increasing impact: of increasing substance abuse, stressful living.

Health promotion can be seen as having the following characteristics:

1. It seeks to maximize good health.
2. It focusses on causes and seeks to reach people while they are still healthy, rather than responding to disease.
3. It offers a broad range of services including educational, therapuetic (stress reduction) counseling, dietetic biological analyses.[4]
4. It locates in a broad range of settings, including community, recreational, work and home.[5]
5. It is continual as opposed to episodic.
6. The burden of responsibility is on the individual.
7. It concerns itself with the emotional, social, spiritual as well as

physical aspects of the person.[6]

8. The provider is a facilitator -- a resource and service that the client encounters in a learning experience.[7]
9. It is open to methods of other cultures, to intuition, empathy to the employ of the range of powers of the mind.[8]
10. It is concerned with the environment and man's relationship to it.[9]

B. WHAT IS A HEALTH PROMOTION FACILITY?

From the ten previously mentioned characteristics of health promotion one can establish some criteria for a health promotion facility:

1. It seeks to maximize good health.
2. It is not a curative facility, but is populated predominately by the healthy.
3. It houses a broad range of services.
4. It can be of many families of use -- community, recreational, work, housing.
5. It is a continual use facility that can integrate itself with a person's life style and is not associated with illness.
6. It is a place that a person goes of his own volition ideally, that a person is able to bear the associated costs, and moreover, desires the services to the extent that such expenditures would not be considered "medical costs" but rather educational or recreational costs.
7. It can have social or religious functions.
8. The providers -- the counselers, etc., are ancillary services, and are not the focus of the facility, are not the stars of the show.
9. The facility is open to methods and attitudes of other cultures.
10. The physical environment -- both built and natural -- and how it is experiences is important.

Given this set of operating criteria, various contemporary and historical models are examined and appropriate characteristics ferreted out.

C. TWO CONTEMPORARY HEALTH PROMOTION FACILITIES

1. The Pioneer Health Center

Although "wholistic health," "health promotion," etc. are billed as fairly recent notions, the closest conscious effort to create a health promotive facility was probably the Pioneer Health Center in Peckham, England. Although its buzz words centered around the prevention of illness, the Center, in fact, functioned to promote wellness.

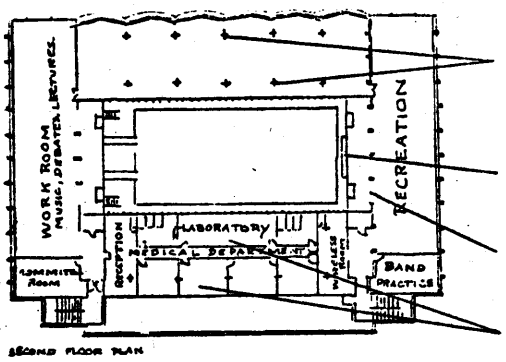
The Pioneer Center was established in the late 1930's as a lab to observe the living.[10] It was to be concerned with the total individual, from conception to death, in all phases of life; the individual's relationship to his environment; and therefore, was intrinsically involved with the family unit.[11] So the Center was patterned after a family club, with members required to pay a small monthly sum for services rendered, and to undergo a yearly checkup.[12] The facility itself housed a swimming pool, a gymnasium, cafeteria, various recreational and social gathering spaces, and the laboratory and examination area.[13]

The Center strove towards many of the characteristics outlined in the previous section, stemming from:

1. A focus on health and not on sickness.
2. Although it dealt with medical screening, it sought to create a field of healthy users, in a free and diverse environment.
3. & 4. It offered many opportunities for recreation, social interaction, exercise, relaxation, and for open consultation with professionals concerned with the client's well-being.

5. By assuming the role of a community center, by catering to the needs and time commitments of children, housewives, working men, etc., the Pioneer Center was explicitly trying to become an ongoing part of people's lives.
6. Self-reliance was an important theme. The wish was that the costs were ideally to be borne by the clients (although as a prototype it was not the case); that moreover external funding would deprive the family of expression of this desirable good.[14] The self-reliance principle was extrapolated to even the operation of the facility -- the organization of social events, self-service cafeteria, and self-imposed use charges.[15]
8. The role of staff was that of facilitators to allow free and open access to a pool of information that was of mutual benefit. Rather than removed observers, they were simply a human component of the Center that offered their own set of capabilities.

The facility itself was a three-floor loft building oriented around the swimming pool and separated only by a glass wall, so that the main gathering spaces, cafeteria and medical department all opened onto this central activity. All interior walls were easily moveable block walls, in order to obtain maximum flexibility.[16] The building was to provide a forum for diverse activities to freely occur, which was interpreted as the kind of flexibility one finds in hospital services or warehouse design. The building was often mistaken for welfare or medical institutions.[17] The desire for an open space relation between staff and



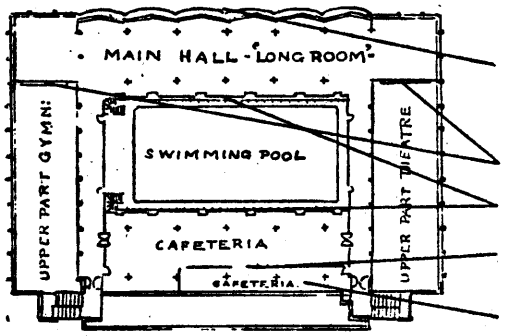
SECOND FLOOR PLAN

Cruciform pillars carrying the concrete floor spaces, and affording conduits for power, water, etc., allow flexibility of internal planning.

Window giving view of swimming bath.

Billiards, table tennis, darts, etc.

There is privacy in the Physiological Department.



FIRST FLOOR PLAN.

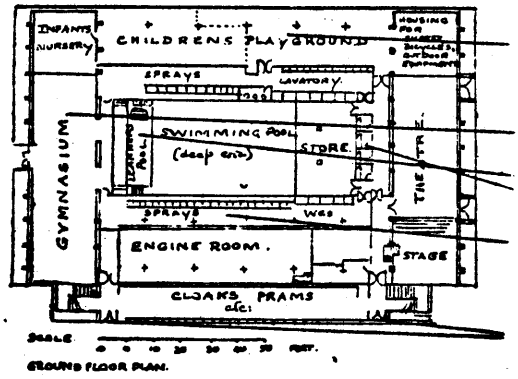
Sliding windows the height of the room can be thrown back in Summer. Bays between the pillars forming natural points of congregation for groups of people.

Windows giving on to gym and theatre.

Windows surrounding bath.

Cafeteria counter and window into kitchen.

Kitchen for preparation of cafeteria meals, including Nursery teas by mothers.



GROUND FLOOR PLAN.

Covered playground for children of all ages, with Infants' Nursery located to catch the full afternoon sun.

Gymnasium with easy access to the Nursery, playground, and to the garden.

Infants' and learners' pool.
Slipper baths
Lavatories and spray-chambers for men and women on either side of the bath chamber.

The main entrance is at the back, leaving the front unobstructed for maximum utilisation of sunshine and open aspect.

The general construction of the building is that of flat slabs on cruciform columns allowing of maximum flexibility of planning : no immovable partitions.

Whole building planned on a grid 18ft. square, varied at either wing to give a 24ft. span for gymnasium and theatre.

All single lines on the plan represent easily removable brise block partitions.

user resulted in virtually no privacies for anybody.

> "...in biological laboratories of botany and zoology the microscope has been the main and requisite equipment...[the scientist's] new lens is now the transparency of all boundaries."[18]

The physical environment was important only in the structure it gave to activities in the gross sense, and was consciously minimized, as to give no clues for use.

2. The Wellness Resource Center

Throughout Northern California, a number of health promotive groups have emerged, performing diverse functions and offering a variety of services. One of the more well-publicized and notable efforts is the Wellness Resource Center in Mill Valley, California, just north of San Francisco. The Center offers personal evaluations of an individual's health, consultation, biofeedback measuring and group life style seminars. It shares a building with doctors practicing "alternative" forms of treatment, such as massage, rolfing, acupuncture, and various life conseling groups.[19]

The Center's efforts are basically educative. Rather than developing an ongoing relationship with the client, it provides the information and techniques over a discrete period of time to enable the client to restructure his lifestyle.[20] The major areas of concern are physical development, nutritional awareness, and control of tension and stress. Approaches advocated in responding to these areas of concern are diverse and non-dogmatic -- that is, one particular diet, form of exercise, or

stress control technique is not emphasized, but rather a wide range is explored.[21]

Conseling occurs on a one-to-one basis, as well as in groups, and can be carried out over long periods of time or in weekend intensive seminars.[22] This requires a variety of spaces ranging from a large group seminar room to small raised loft spaces. What therapeutic services offered are generally in the area of stress control: biofeedback measurements (the monitoring of thinking functions, muscle tensions and using that information, learning to relax), hot tubs, saunas and massage.[23]

The facility itself, of which the Wellness Resource Center is a part, is another version of the physician practice center. It is similar in that the providers benefit from the agglomeration of their services to offer, in this case, a broad range of health promotive functions. It differs in that it has neither the technological requirements and support facilities, nor the need for a proximate relationship with a hospital that most physician practice centers have.

3. A Comparative Evaluation

The Wellness Resource Center and adjacent providers can be compared to that part of the Peckham Center that performed similar functions, though not in such a sophisticated way. The major difference is that, both having disassociated themselves with the hospital, the Peckham Center chose to make itself ancilliary to a community use, while the Wellness Resource Center chose a singular identity. This handicaps the latter in that it demonstrates a focus on the provider and the current doc-

tor-patient relationship even though the message that it espouses is one of egalitarianism and self-responsibility.

The Peckham Center failed, partly due to an identity problem and a transitory population. It had some of the characteristics of a soup-kitchen: to the upwardly mobile population it was something that was a part of life that would be left behind. The society page of their newspapers did not show people in pioneer health centers. If a health promotive facility is to be a desirable good, then one would expect those most able to acquire those goods would do so. Therefore, to find prototypes and models for those facilities, the efforts of the well-intentioned towards the betterment of the needy are not so valuable as the places that respond to the needs of those who can make choices.

The two places share a concern for the whole person, a concept of an educative and facilitating role for the professional, and baths. In the case of the Peckham Center, the swimming bath function was central in form and in relation to the activities of the rest of the facility. Baths in the Wellness Resource Center are ancillary and utilized primarily in stress reduction. In search of a non-medical use to subordinate the educational and therapeutic facets of health promotion, the Peckham experiment provides a basically sound model in the swimming bath. The Wellness Resource Center hints at the range that warrents a broader look at the bathing function.

D. THE BATH

1. Bathing

Bathing is defined as "the act of subjecting the body, or part of it,...to water, vapor, hot air, mud, or the like."[24] Although the purposes of bathing vary with respect to the disposition of the bather, they can be generalized in three basic categories:

1. ablutive -- external cleansing[25]
2. curative -- treatment of various afflictions[26]
3. regenerative -- physical, psychological, and/or spiritual improvement of the individual.[27]

Towards these purposes, the act of bathing works through various methods. The exposure of the body to a fluid agent can facilitate the mechanical removal of dirt, oil, and foreign bacteria. The temperature of that agent can of itself destroy some bacteria, as well as stimulate blood circulation, dilate and close pores of the skin, and modify body temperature, altering other bodily processes. The agent may have some chemical or physical properties that act on exposed organisms, or replace bodily oils. The fluid agent may also be a forum for exercise, so that the act of bathing also encourages muscular development, or, conversely, a forum for repose.

2. The Bath Facility

The major form-giving determinant to a bath facility is the nature of the bathing medium. The most widely used is water, generally in

its liquid state, although steam is fairly common, with ice and snow less frequently found. The atmosphere, under certain circumstances, may act as an effective medium, such as hot-air saunas and fresh-air nudist camps.[28] Artificial and natural light constitute another distinctive category of bathing media. Beyond these three major agents are a host of muds, oils, and other fluid substances, commonly utilized for reputed curative powers.

The temperatures range approximately over those dictated by the media and by the capabilities of the human body. Snow baths follow winter extreme temperatures, while the lower limit for water baths is in the vicinity of 0°F, the freezing point of brine. Upper end limits are 120°F for water, 160°F for steam baths, and upwards of 240°F for saunas.[29] Seasonal determinants notwithstanding, the extreme temperature baths are given to the most contained enclosures.

Distribution of the media is commonly by immersion, although some motion may be imparted, as in a whirlpool or shower-bath.[30] Some of the more exotic substances, such as mud and oil, are applied by hand, and may be incorporated into the practice of massage.

Where the bather meets his medium is controlled by the locational constraints of the two. Certain types of bathing activity are site specific, and are found only where the opportunity presents itself (hot springs, beaches, rivers). Other bathing uses locate with respect to socio-economic characteristics in either a centralized or de-centralized manner. In western society, cleansing is a privatized activity, occur-

ing in the housing unit, while recreational swimming is more communal.

3. The Bath in Antiquity

The earliest records of bathing activities date from around 2500 BC. Egyptian reliefs exist depicting swimming men, one in particular shows two bathers being scalded by careless slaves, although there is not evidence that communal bathing facilities existed.[31] A bathing complex at Mohenjo Paro, in the Indus Valley, consisting of a large bathing hall as well as a number of individual baths represents the earliest such a building as yet uncovered, roughly contemporaneous with the Egyptian reliefs.[32] Biblical references to bathing include the discovery of Moses by a daughter of the Pharaoh while she was bathing in the Nile; the Jews that he subsequently led from Egypt are said to have regarded bathing as a symbol of the cleansing of the soul.

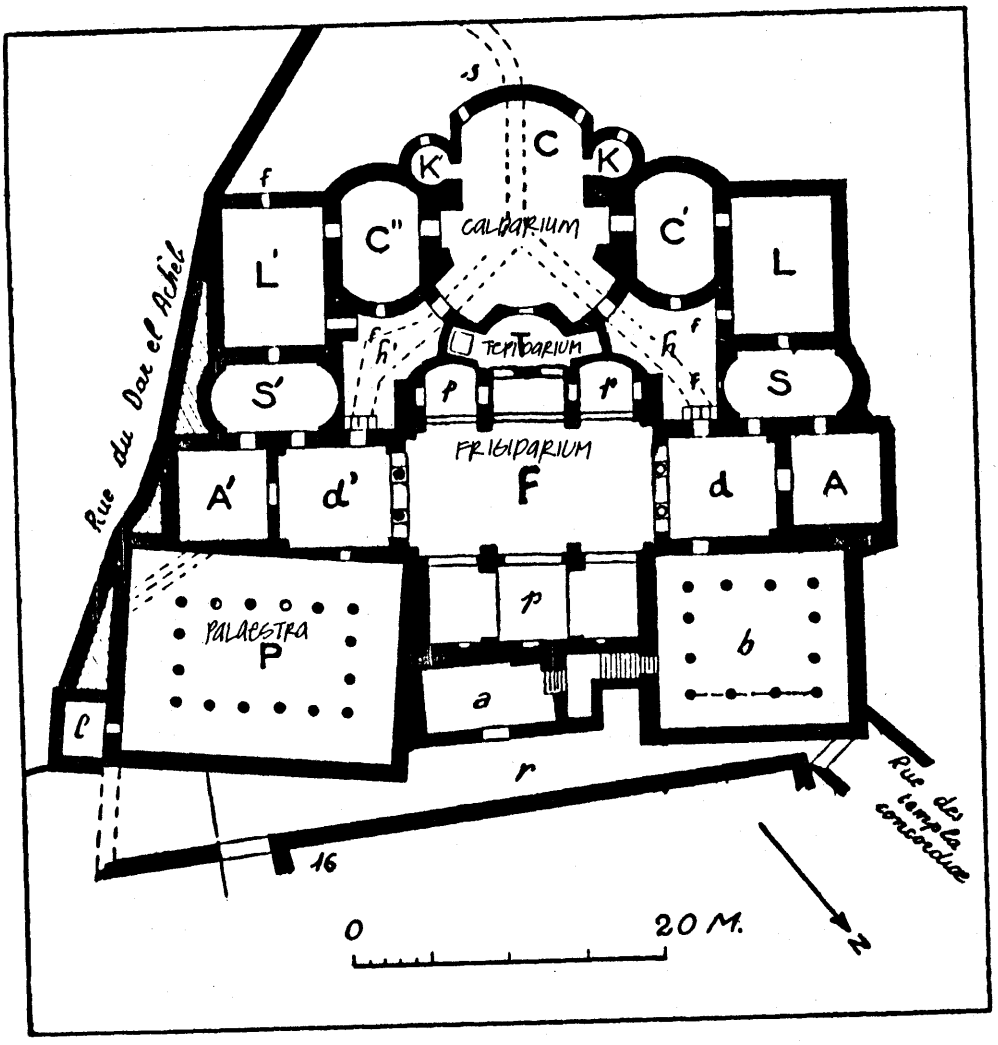
However, the development of the bath in classical antiquity is traced from the Greek gymnasia. The gumnasium first emerged as open exercise areas on the outskirts of a town, where men would engage in physical exercise, particularly wrestling.[22] This required covering the bodies with oil, then dust, to facilitate the grips, so that the gymnasia were of necessity located near water sources that could be utilized for cleansing.[34] The gymnasium became the seat of the educational system, providing the intellectual and physical training for the youth of the Greek city-states, as well as serving as a primary institution for a broad cultural discourse.[35]

At first disdained for their comfort in comparison to the simple

cold waters of a spring or river, heated baths first appeared as circular enclosures carved into rocks, then were refined into vaulted spaces with subfloor (hypocaust) heating systems.[36] By the fourth century B.C., excessive adolation of athletes, and the deploration of other perceived physical excesses resulted in a decreasing emphasis on the physical aspects of the gymnasium and fostered more sophisticated baths. It was this notion of bathing, incorporated into a broad ideal of mental and physical regeneration, that was propagated throughout the classical world.[37]

The Romans did not share the Greek love for sport and were critical of its role in athletic and military training, thus it was the bathing activity that was most enthusiastically adopted.[38] They refined the organization of the bathing facility and its role in daily life, to the point that the bath was the focal point for a major part of each day's activity.[39] So much so, that legislation was periodically passed to restrict operation of the baths in order to encourage execution of the more mundane activities of civic life.[40]

Although the configuration of the Roman bath varied somewhat over the passage of time and throughout the extent of the empire, its principal physical elements were relatively constant. The main activity revolved around the caldarium (hot room), and the frigidarium (cold room) connected by the tepidarium which served as a heat lock between the two. The rooms contained pools of water at the corresponding temperatures, the water being heated adjacent to the caldarium and the hot exhaust forced



A typical medium sized bath of the Roman Provinces.

under the false floor and up the inside of the walls to heat the rooms. Often the frigidarium would open onto a large exterior swimming pool, or piscina. Ancillary to these major elements were spaces that housed the support functions, sweat baths, and commonly a palestrum -- an exercise yard with a peristyle containing places for repose, massage and other activities. The palaestra of the baths found in the Roman Provinces often contained a number of administrative and commerical functions, due to their peripheral relationship to the rest of the facility, while the more architecturally integrated thermae of the Western Empire utilized the space solely for physical exertise.[41]

The baths assumed two forms within the frame of the city. Located on the perimeter were the thermae, in a park-like setting surrounded by gardens, fountains and an outermost ambulatory housing libraries, auditoria and establishments of commerce.[42] The balneae provided the small, decentralized complement to the thermae, serving the immediate needs of the urban populace.[43]

4. Medieval Through Comtemporary Bathing

The strong regenerative role of the public bath was a threat to the Christian Church, and the institution faced attempts to discourage use, in some instances the actual bathing facility being converted into a place of worship. "He who has bathed in the glory of God has no need for water."[44] However, public baths prevailed, this time without ties to the gymnasia and palaestra, without the educational and athletic activity, and thus without mental and possibly spiritual regenerative role

then being usurped by Christianity. During the middle ages the baths began to take on a primary role of ablution, with the masseur of the classical times becoming the barber surgeon. In this respect, the public baths' function is adapting to the current notions of health and medicine, in addition to still providing a focus for social intercourse.

It is ironic that the seeds of the reformation were said to have been sown in clandestine meetings in the baths, because the reformation and counterrevolution ultimately brought about the disappearance of the public bath in western society.[47] Nakedness was seen as a sin; public baths were associated with decadence and prohibited during the seventeenth and eighteenth centuries.[48] The cleansing activity that continued, did so in a privatized manner.

The nineteenth century saw advances in medical science indicating the relationship between cleanliness and health; isolating the bacteriological origins of disease. Public baths reappeared in the interest of public health (a new concept) in response to a lack of private facilities by the general public. The New York legislature, late in the century, passed a bill making baths mandatory in all cities of over 50,000 people, to "reduce mortality, number of sick, and improve air in public buildings."[49] By this time the shower bath was becoming the principal methods of distribution, and the private bathroom had reached the form that has remained essentially unchanged since then, but has proliferated so that public baths for cleansing purposes are now obsolete.

Currently, the public bath occurs in several partial versions.

The most common is the public swimming pool, referred to as a recreational facility but not re-creational as the breadth of the meaning might imply. In comparison to historical models, it is quite limited both in the physical nature of the bath and the purposes that it attempts to achieve. Certain imported baths are occasionally found. The Finnish sauna, a descendent of the Roman laconicum, or hot-air sweat bath, is experiencing an increase in popularity. Predominantly a private facility based on the family unit, the bathing process is characterized by intermittent cold immersions, followed by a period of repose and dining, to renew salt, liquid, and energy.[50] Transfered relatively intact through Islam, the Turkish Bath is very similar in form to its Roman precedent. While the health spa usually incorporates both the Turkish bath and the sauna, its frame of reference stems from the German kurhäuse and kurgebiet, where emphasis is on physical exercise and curative measures.

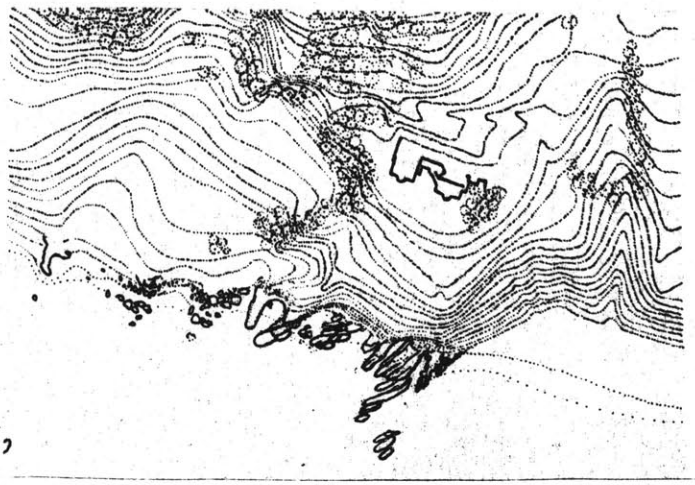
Originally an ablutive process, bathing, during classical times, became associated with physical and educational activity, and thus expanded its role to a regenerative one. This position as a regenerative force was taken by the Church, and subsequently the bathing function was privatized and associated with contemporary notions of health and well-being. Since present concepts of health embody a broader picture -- encompassing physical, psychological and spiritual aspects of the in-

dividual, and the Church no longer fulfills the broad cultural regenerative role that it once did, the classical model for the bathing function can inform current explorations on the topic.

II. FORM REFERENCES

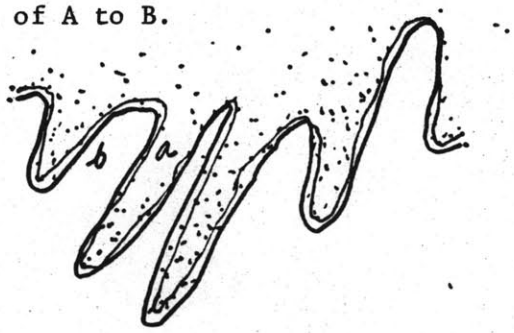
A. USE OF FORM REFERENCES

In generating the form of the projective bath, three particular references were explored in some detail, utilizing film as a method of documentation. They were selected on the basis of some generalizable and non-qualitative principles and not necessarily on program or site-specific criteria, although some fairly direct correlations can be made. The three principle references and basis for selection are:



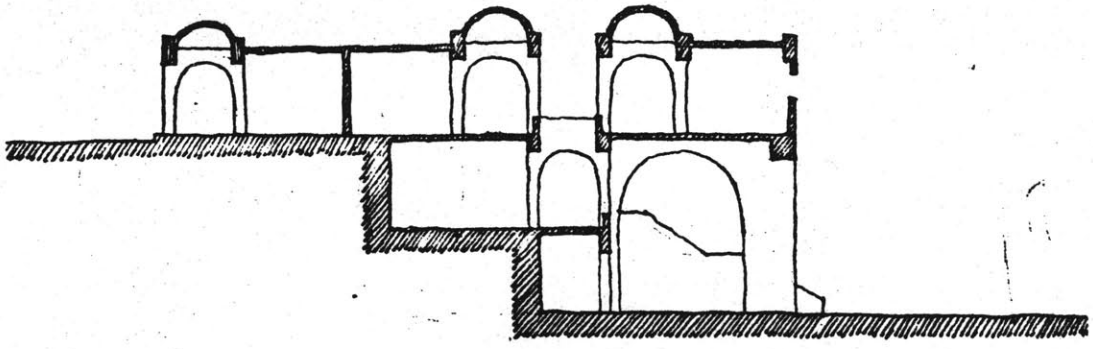
Baker Beach, California

Fingering of rock formation maximizes edge. Strong interlocking and therefore association of A to B.



Urbino, Italy -- Section of Town

Distribution System on a hillside organized as to negotiate that incline in an understandable yet nontrivial way, based on branching and a series of nodal places. Area also demonstrates a range in relationships between public and private, between built and unbuilt, and the related range in continuity--discontinuity.



El Oued, Algeria -- Market Building

At the building scale, the reference shows the application of a particular building system to a sloping site, where the major distribution occurs parallel with the side of a hill. The hill generates large spaces and provides, to some degree, an interlocking of those spaces.

B. FILM AS A TOOL FOR UTILIZING FORM REFERENCES

Ideally, if a reference is to effectively inform the design process, then it should best be situated as to be immediately accessible. In lieu of this, one relies on some kind of representation to record information. In this design exploration, the references were filmed by the designer, so that the documentation served partly as a memory aid. However, for other participants in the design process, the only reality of those references is in the film, and some basic orthographic drawings.

Ease of use of a model, whether descriptive or normative, varies with the amount of information that the model deals with. For describing physical form, complex iconic models such as parametric drawings are more unwieldly in testing alternatives than analog models (diagrams). Similarly, the medium of film, while possessing a great deal of information, proved more difficult to manage in the design process than still photographs would have.

The references were filmed in three ways, corresponding to three notions about how one experiences a particular place:

1. Conceptual framework -- the mental image that one constructs of that place, upon which further information is hung.
2. Theme -- the repeated riff, the principle or principles that are the place, not specific to a particular time, scale or location.
3. Scoring -- characterizing particular places or experiences; real-time experience of the place; sequence.

The third category is most easily grasped. It is the first-

hand experience that the perspective drawing attempts to convey. It is concerned with sensory perception: field of vision, effects of movement in visual field, sound, smells, etc. The second is tied to memory -- how past associations and future projections influence. Like the cubist painting, it tries to be multi-dimensional in space and time. For example, Disneyland is carefully scored, but lacks the continuity of theme that the places it replicates possess.

The techniques of filming predominantly employed:

1. For Conceptual framework:

   Diagrams and cartoon-like images are relied upon, similar to the distorted mental map one might have of his particular environment.

2. For Theme:

   Montage, the assembly of numerous filmed images where the 3-D reality of the place is not literally conveyed.

3. For Scoring:

   "Hollywood continuity," where a certain person might be followed, or his view duplicated, in a relatively clear way, so that the viewer can understand each sequence in terms of physical location, with respect to previous sequences. Peripheral information can be added through cut-away views, without destroying continuity.

The Russian filmmaker, Kuleshev, in the early 1920's assembled filmed sequences of many womens' parts to describe one woman.[51] Similarly, the filmed references were combined into one film to describe the projected place. Animated diagrams were the vehicle for describing the

principles to be translated into a public bath, juxtaposed to the filmed images that they embodied. The filmed sequences were arranged in the order that they were previously described (Conceptual Framework, Theme, and Scoring) corresponding to the process of design. The design of the collective form of the building provided the framework upon which the themes could be explored. Scoring, more related to final appearance, was most important when decisions about closure, etc. were being made. The first assembly of the film contained only actual footage of the references, the second incorporated diagrams of those references and the third included drawings of the projected building.

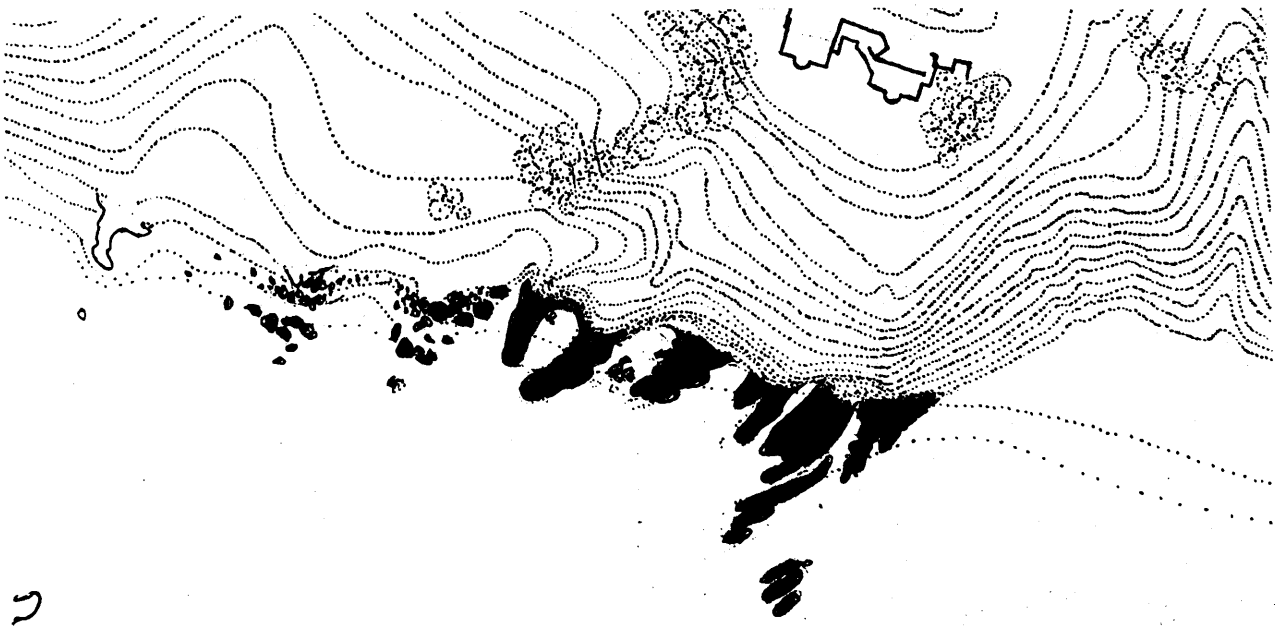
C. PROJECTION OF THE PLACE: ASSEMBLY OF FILMED FORM REFERENCES

1. Conceptual Framework

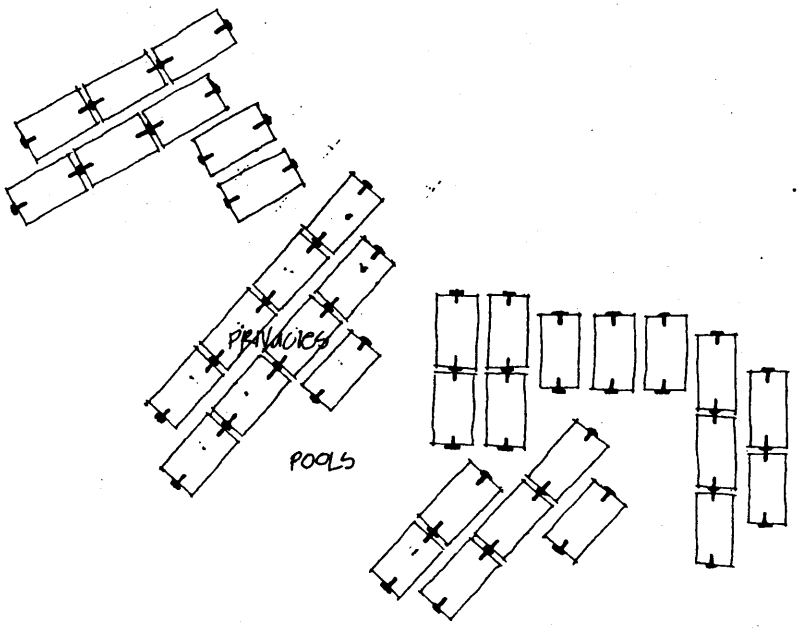
These two sections describe the collective form of the building and the building method that makes up that collective form. Subsequent sections will refer to these first decisions. Illustrations within each section are diagrams of the references and of the projected bath.

a. Collective Form: the Fingers

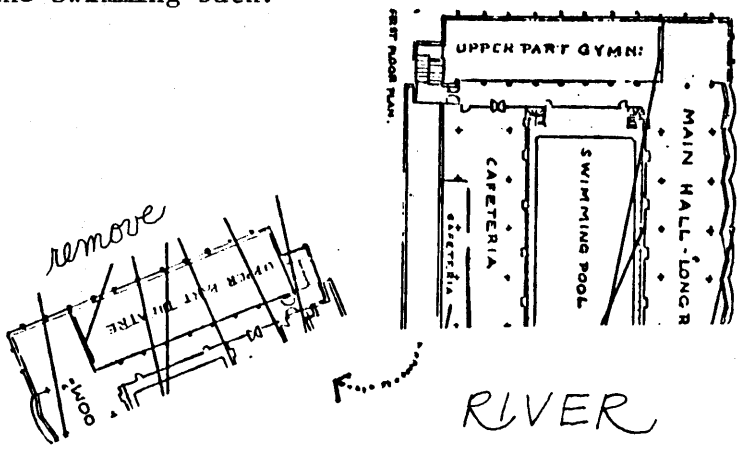
The collective form of the projected bath comes from the fingers of rock at Baker Beach, and the reciprocal fingers of sand and water. This fingering produces a maximal amount of edge, and thus a strong association with that which they penetrate or pass. Both the rocks and the spaces between are potentially habitable, are potentially "building," but the fingering diagram should still hold. The fingers of rock are the most



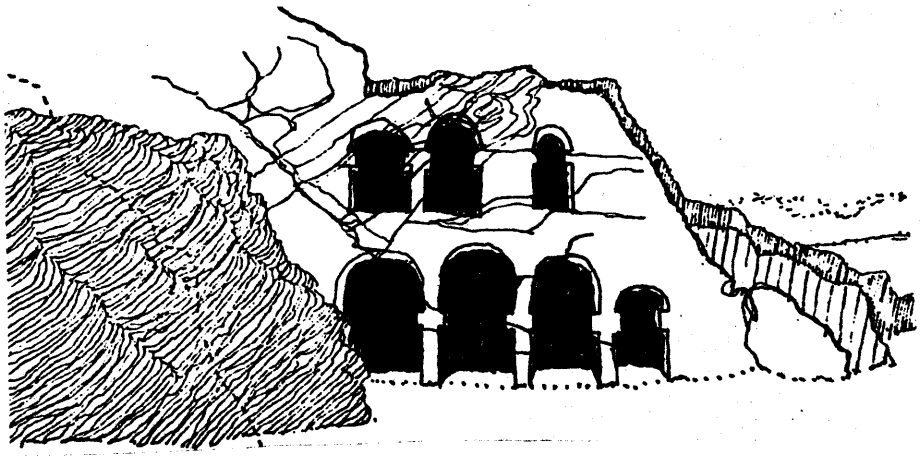
dense portion of the baths, the privacies, whereas the spaces between would represent the large swimming pool enclosures.



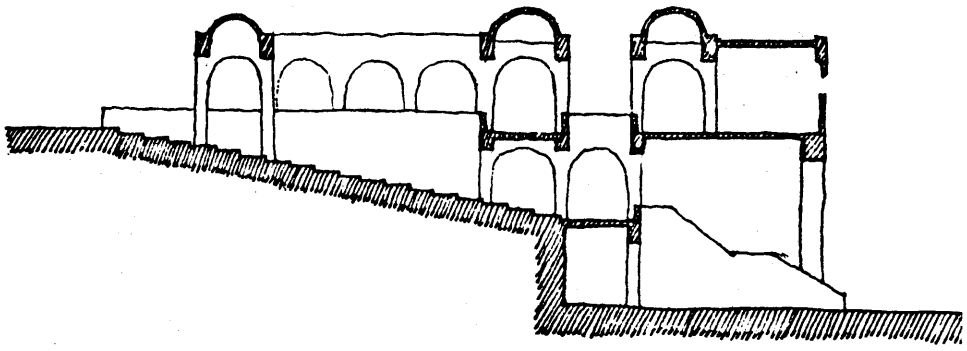
Transplanting the Peckham Center to the river site, by slashing off one end of the building and orienting that open end toward the river, you create a strong reference to the river, while maintaining the unifying element of the swimming bath.

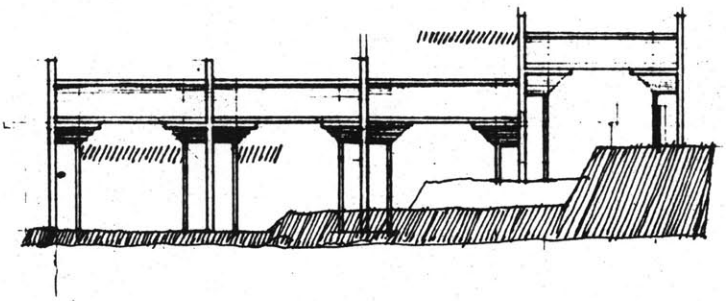


b. Building the Rocks

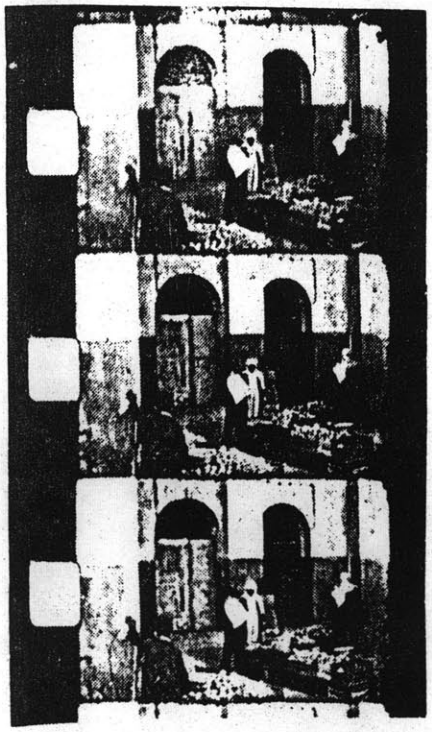


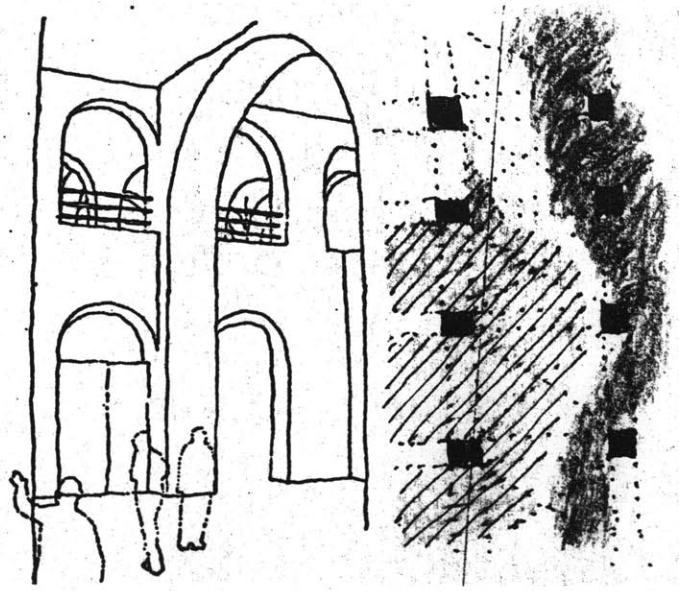
To interpret the rocks as building, a reference for a building system was sought that was not minimal, but quite severe and predisposed to accomodate privacies, yet maintain the strong direction of those fingers and be open to a vertical interlocking of spaces.



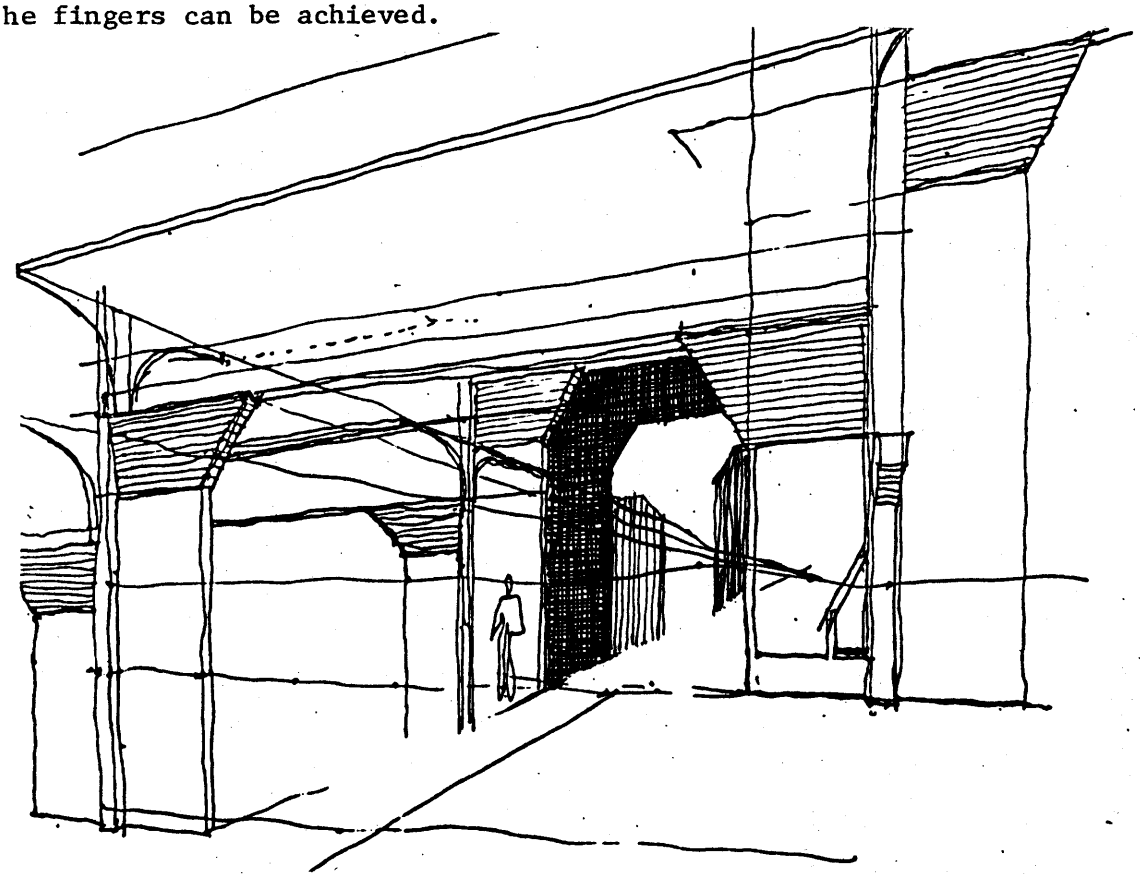


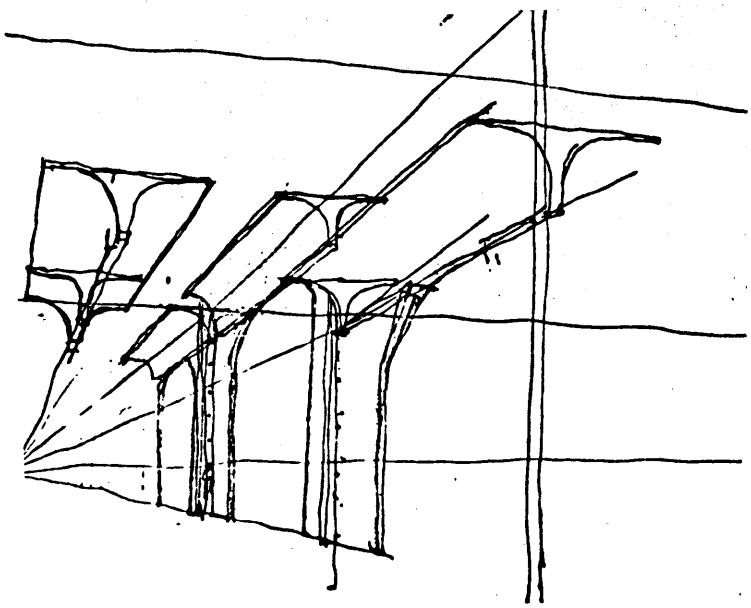
The arcaded building provides an idea of how this can be achieved. It has a tendency to be too contained, but when the dimensions are great enough, shows the capability to accomodate a variety of use and movement, and potentially secondary building systems, as found in adjacent and older buildings.



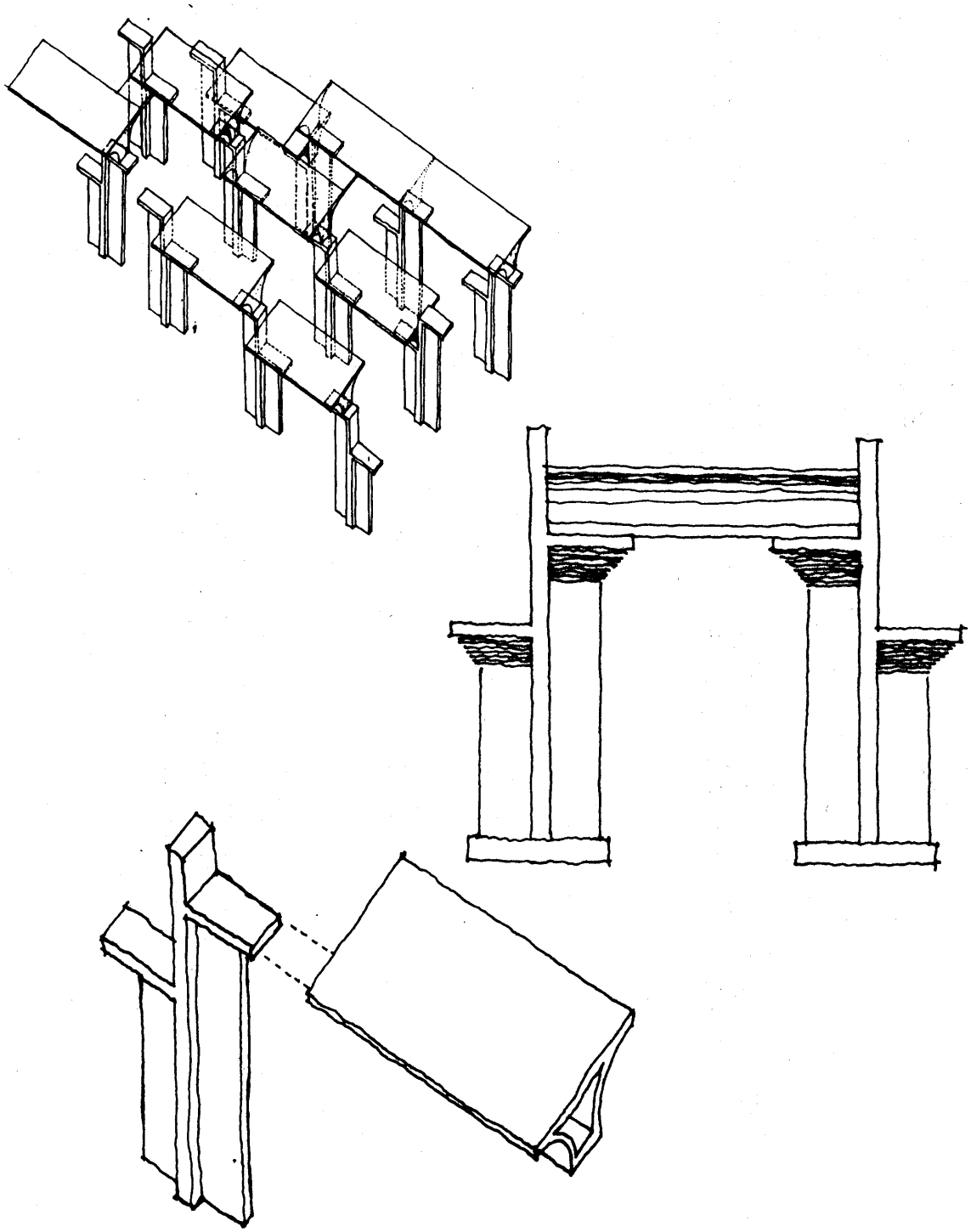


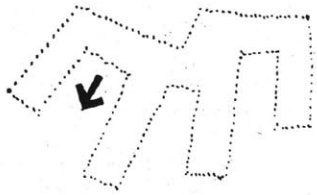
As any arcaded/vaulted space is made up of elements that have their own integrity, by working with those elements the required directionality of the fingers can be achieved.





The major building system is a modern day version of barrel vaults supported by continuous arcades, although no actual arches, in fact, exist.

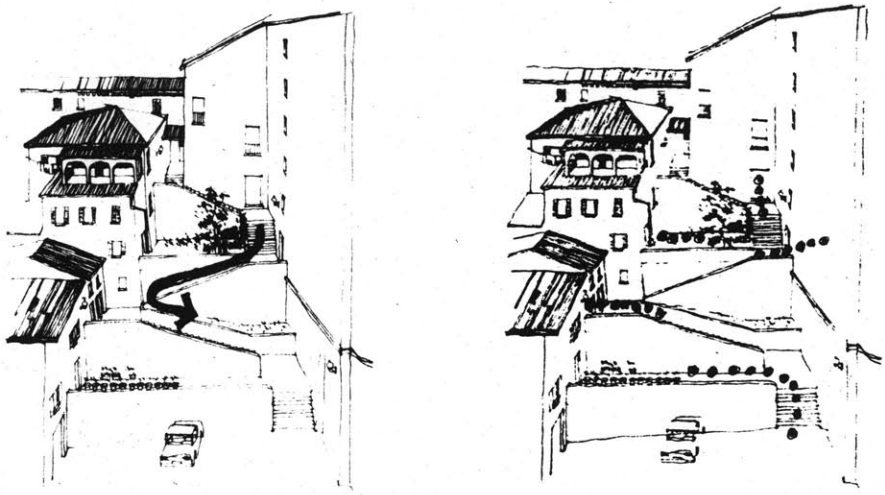




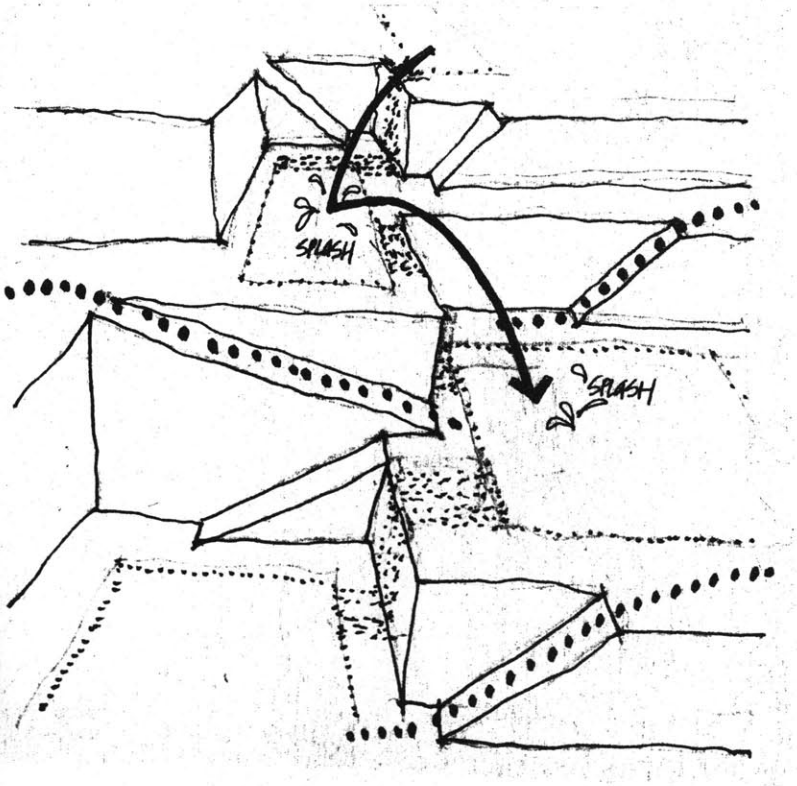
2. Theme: The Repeated Riff

a. Movement with the Fingers

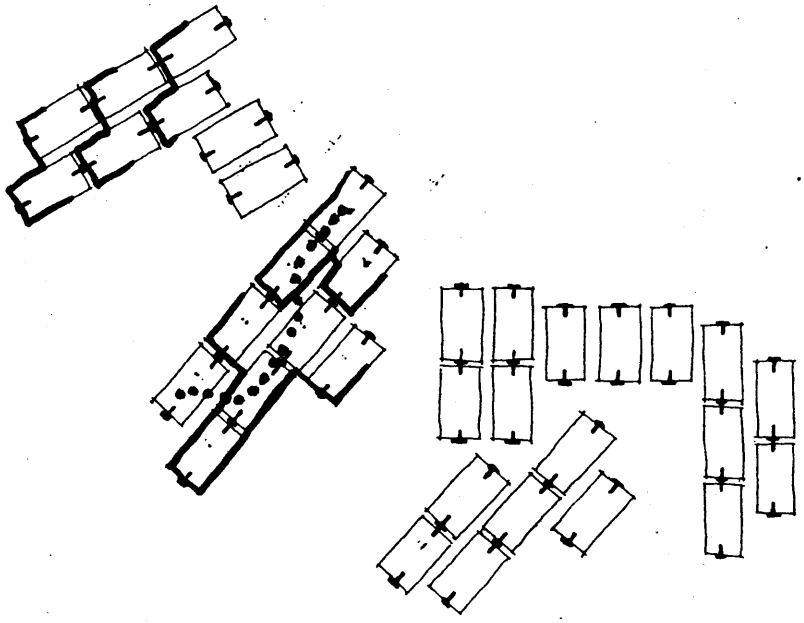
Within the major direction of the fingers but normal to it, there should exist a similar type of fingering but at a smaller scale, so that movement with the fingers is not like that of Lemmings to the sea, but has a weaving that refers to the collective spaces through which it passes and to the distribution that transverses those fingers.



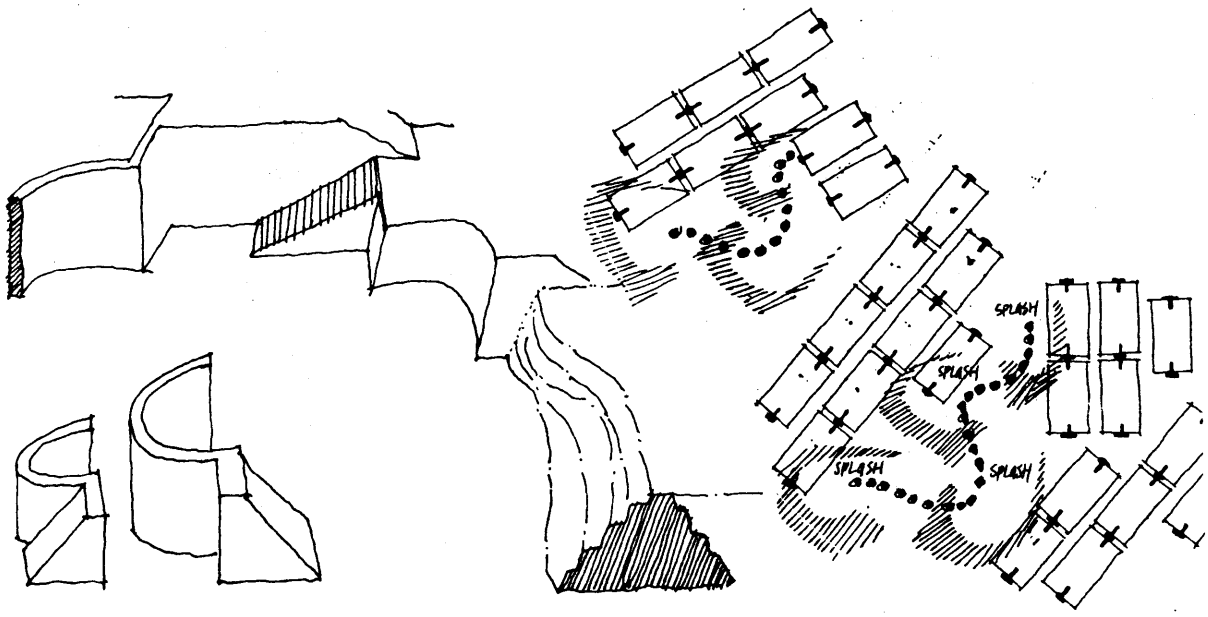
In addition to moving with the fingers, you are also descending toward the river, so that level changes should be incorporated within this model.



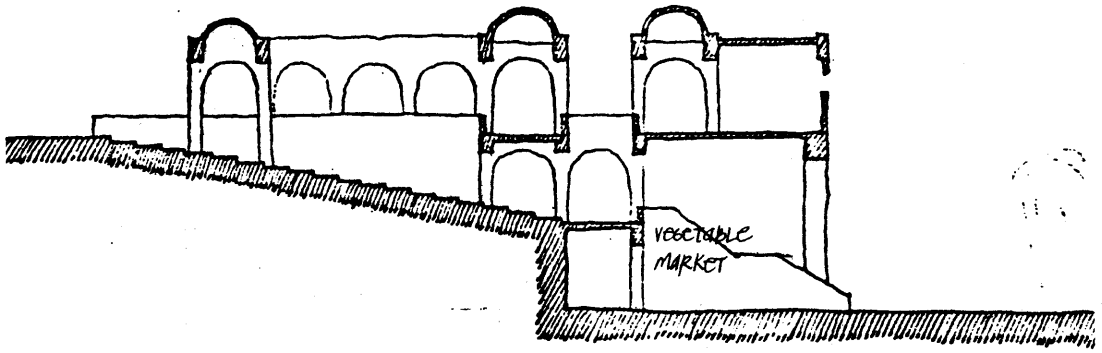
This holds particularly true for the main baths between the fingers, but also within the fingers.

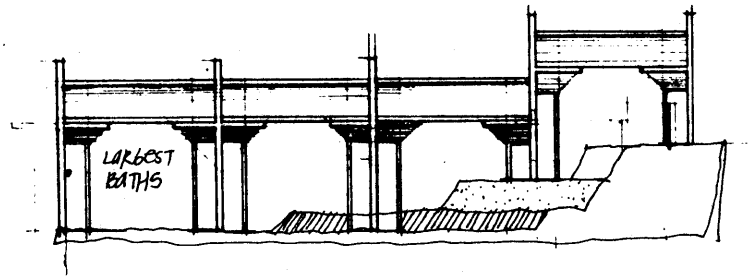


To build the sweeping edge of the large collective baths, arched masonry retaining walls, used elsewhere for contained hot baths, are combined with gravity retaining walls that are less controlled.

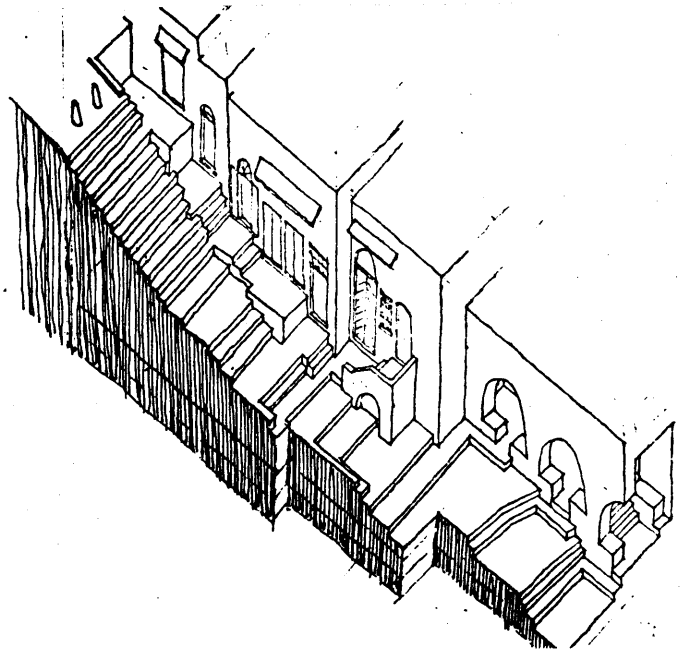


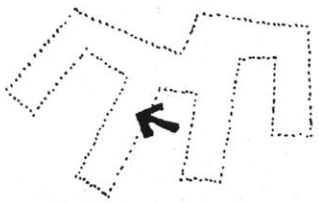
While moving with the fingers, the stepping down of the landscape generates the large collective spaces at the lower levels.





Within the public collective distribution that moves with the fingers, there exists various levels of definition.

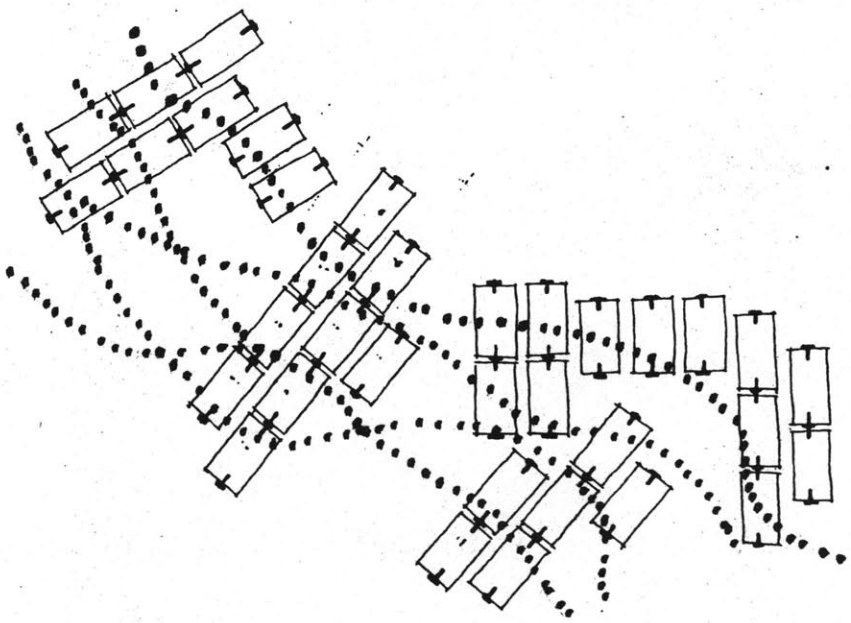


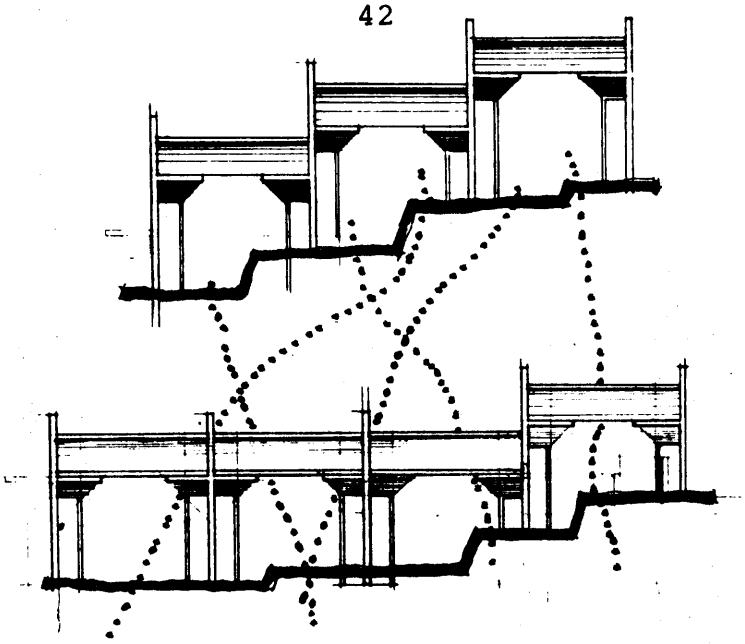


b. Movement Against the Fingers

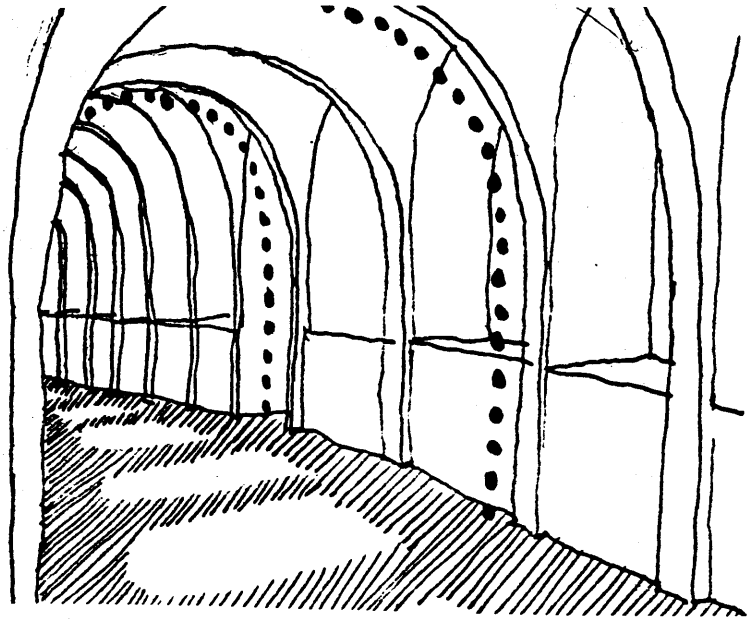
Major movement/distribution occurs along the side of the hill and with the contours, but against the fingering.

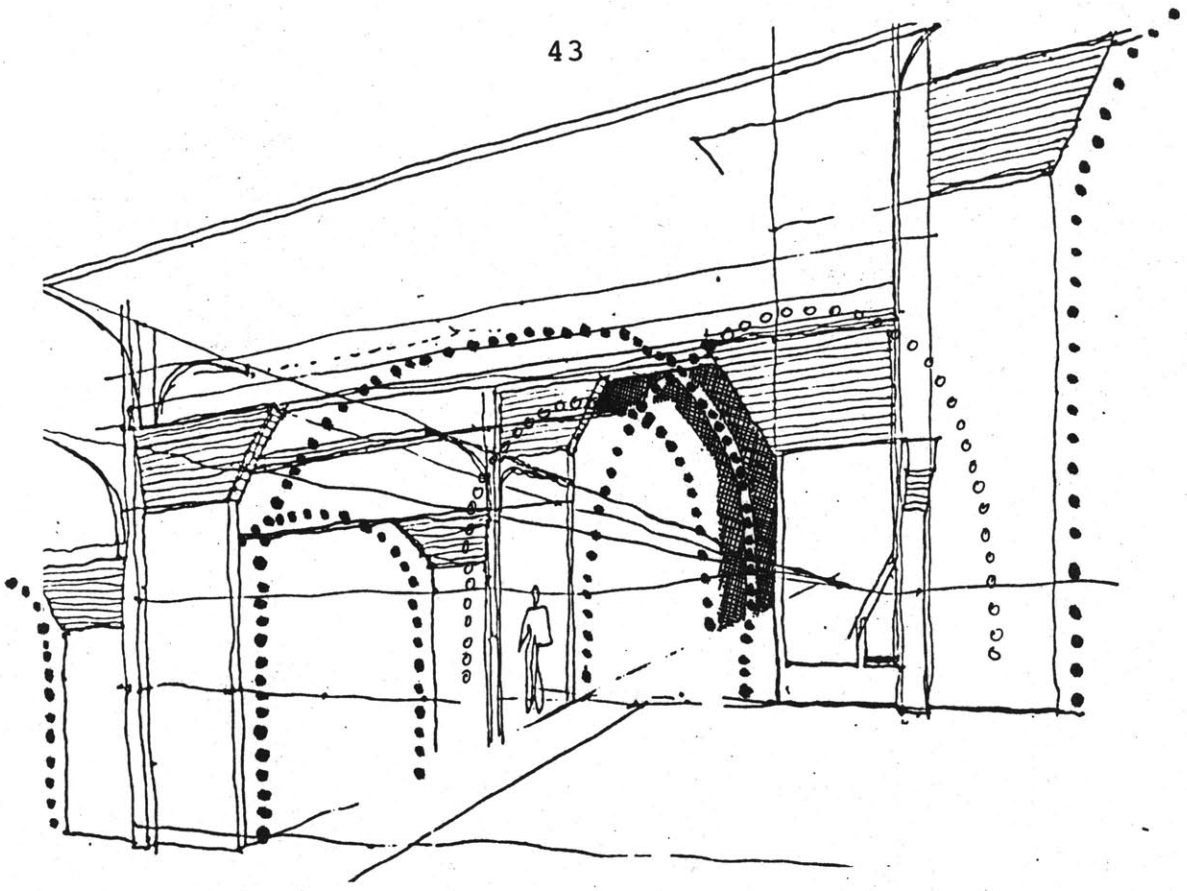
The built-up layering sets up terraces where it is possible to move across the fingers, and edges that can be traversed.



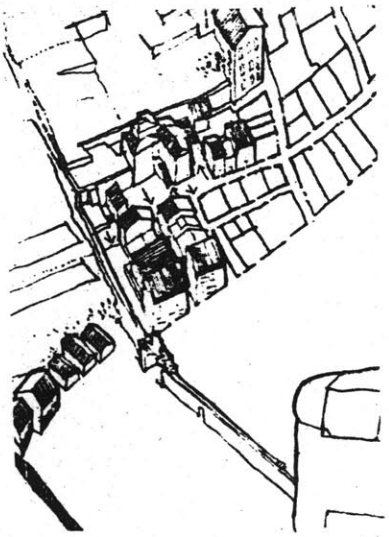


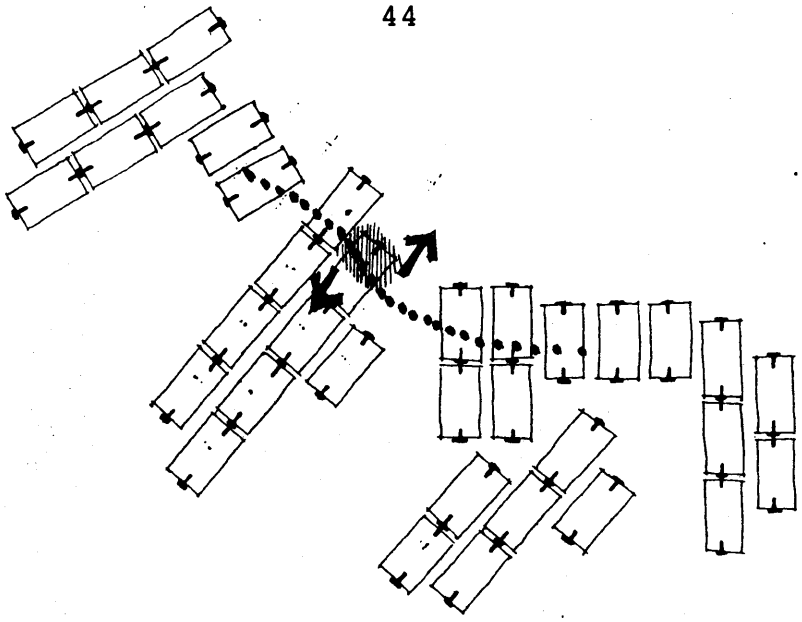
Arches can add up into arcades, though not necessarily in such a contained manner.



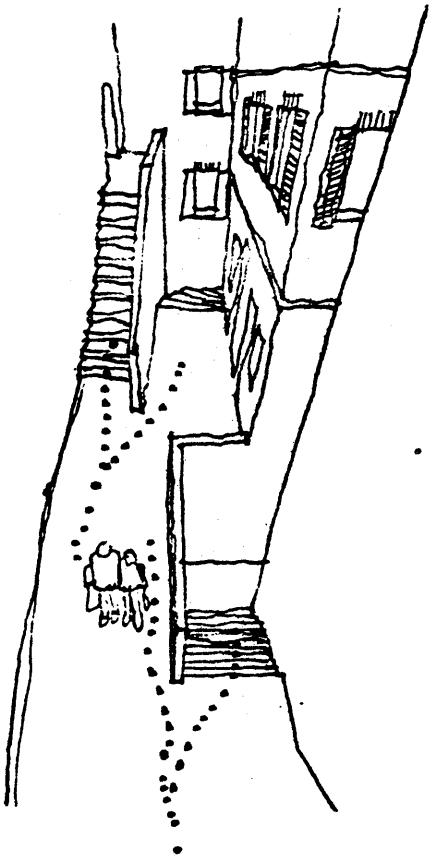


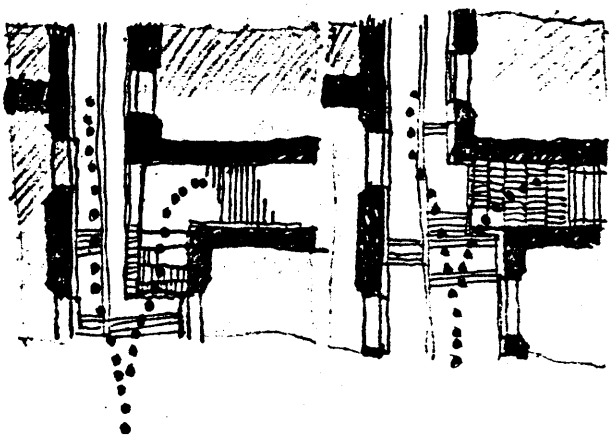
Discontinuous, normal (90 degree) branching off of this major distribution occurs at collective spaces.

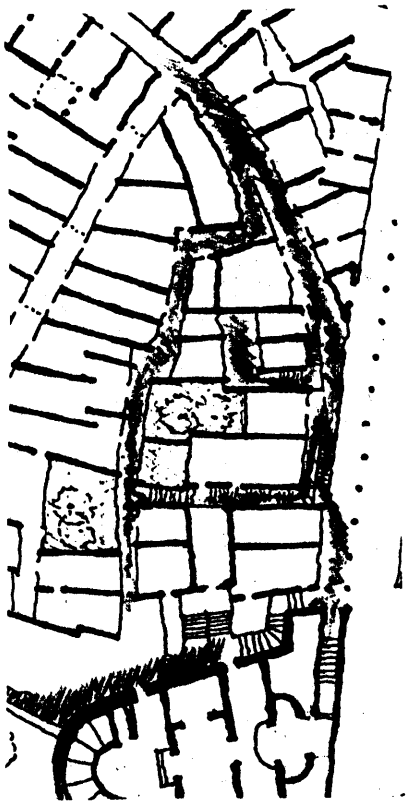


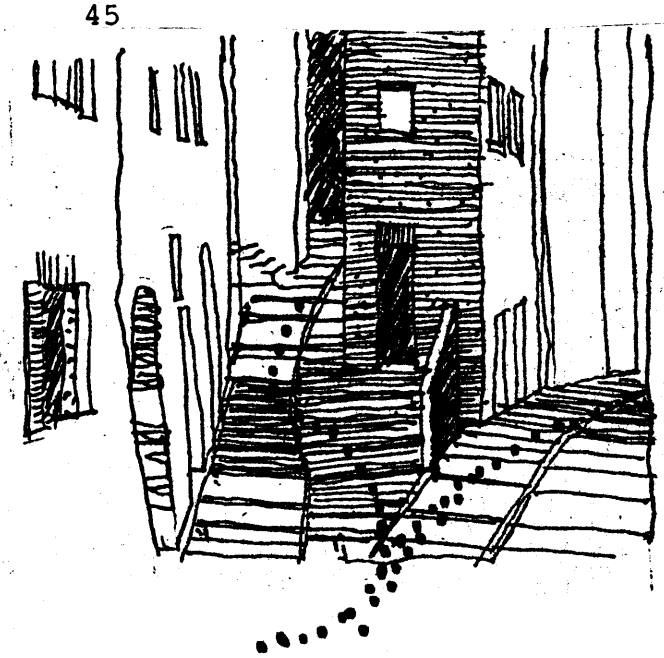


Otherwise, choice in movement occurs in a more tangential way.

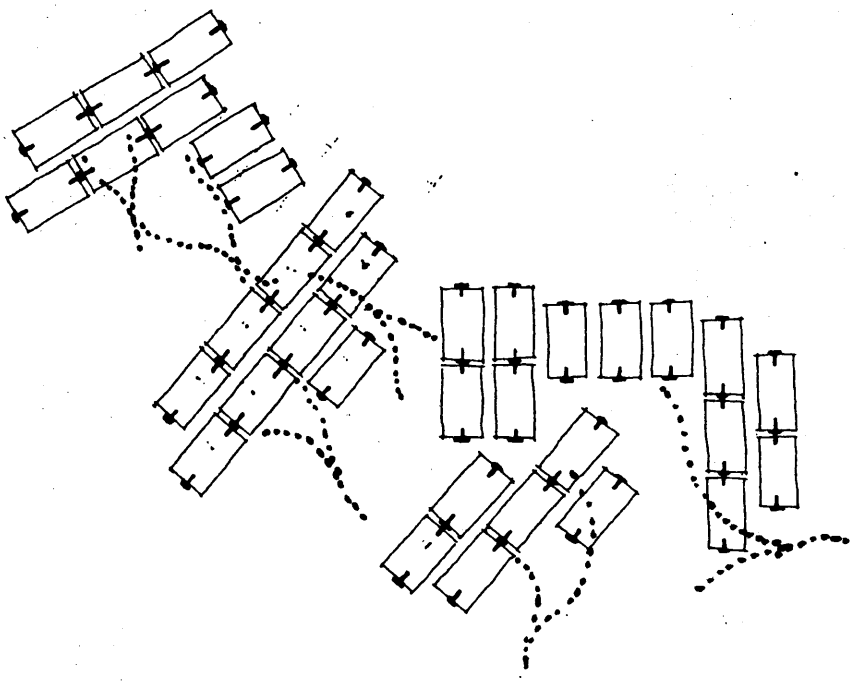




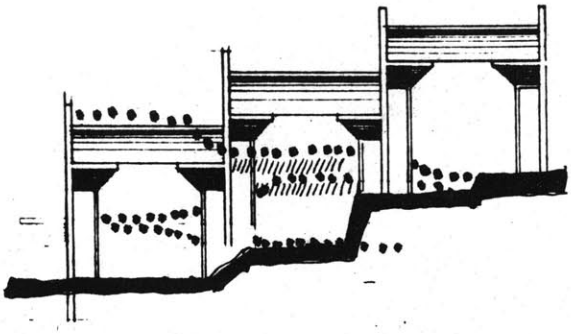


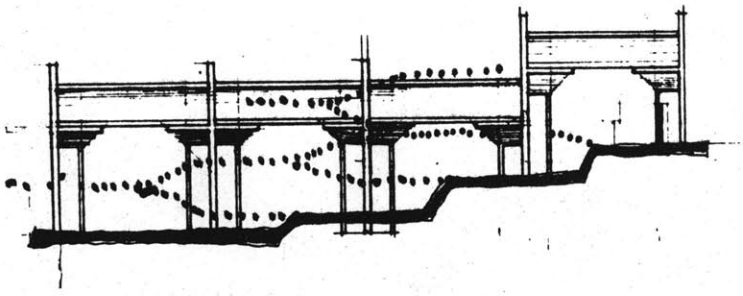


This tangential choice should occur in both plan,



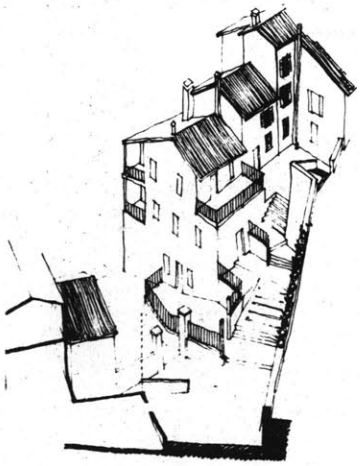
and section.

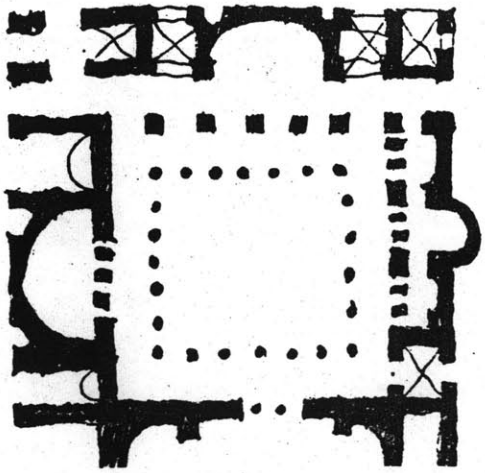


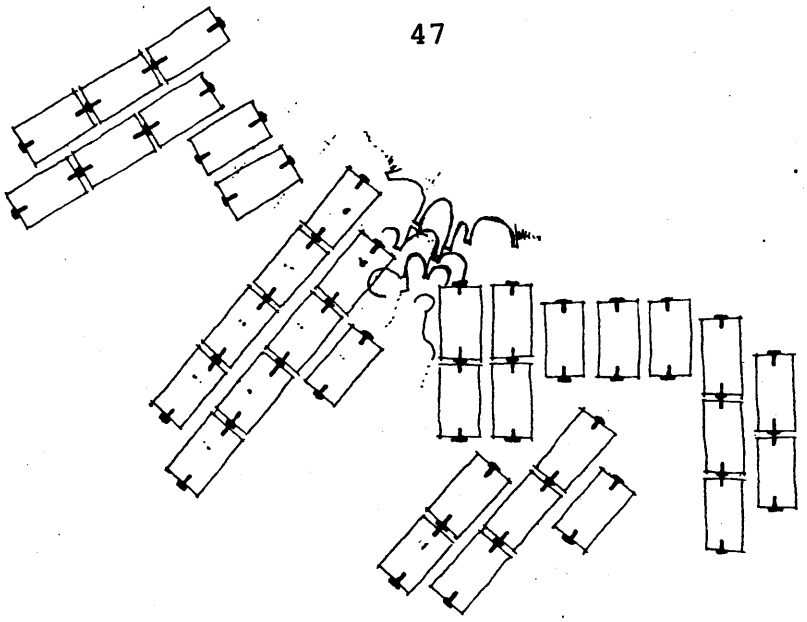


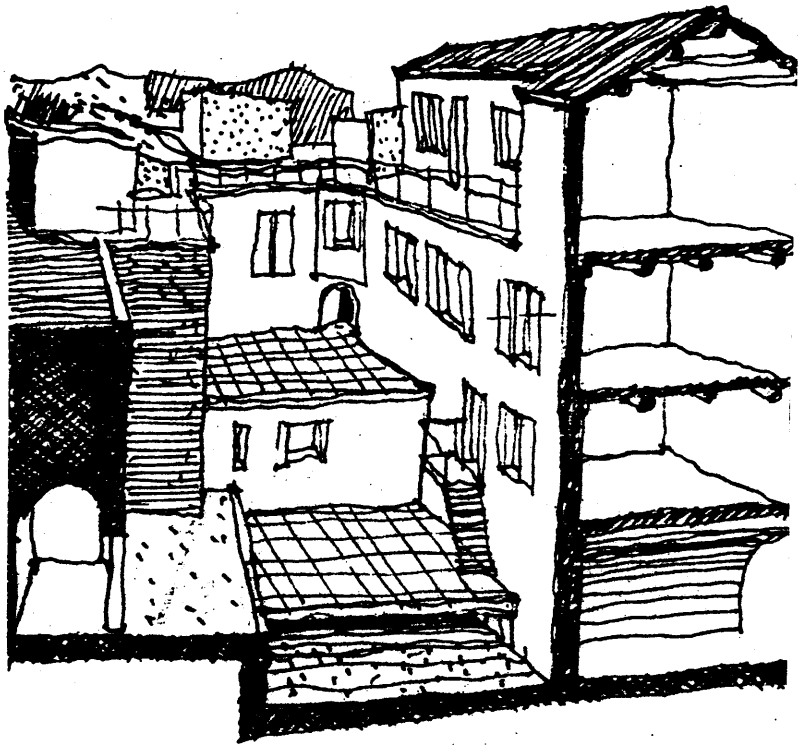
3. Scoring: Characterizing Particular Places or Experiences

Some of the bathing areas will be quite contained -- but the privacies can be agregated to create a collective bath. The clustering could occur in a vertical relationship, accomodating circulation.



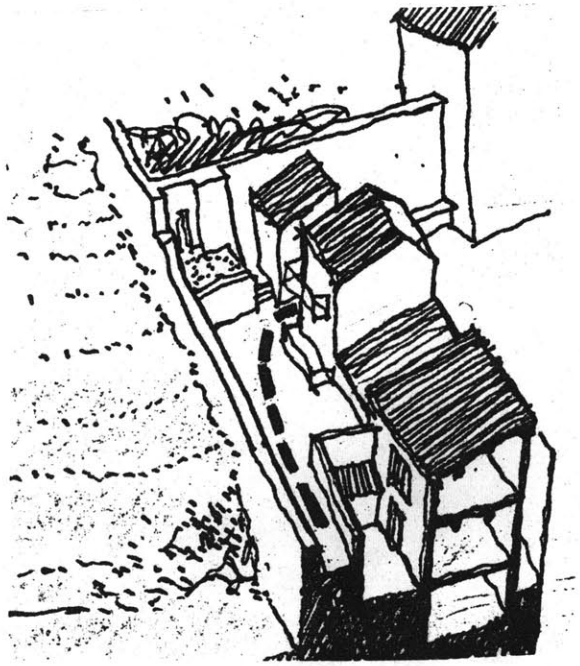


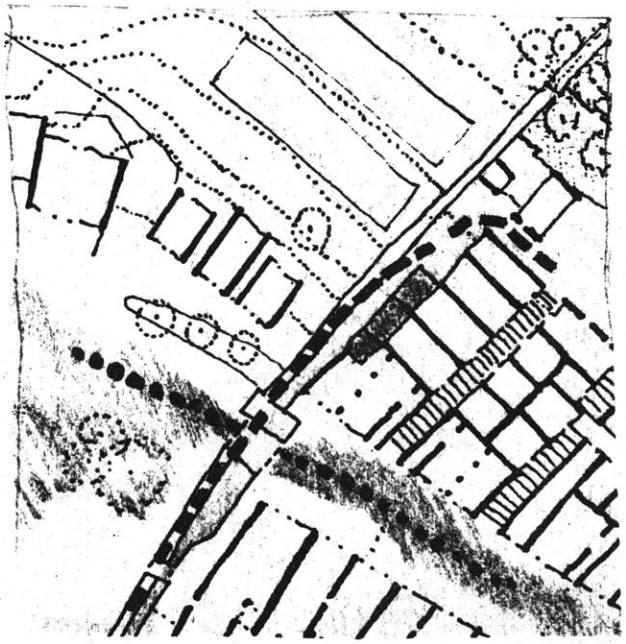


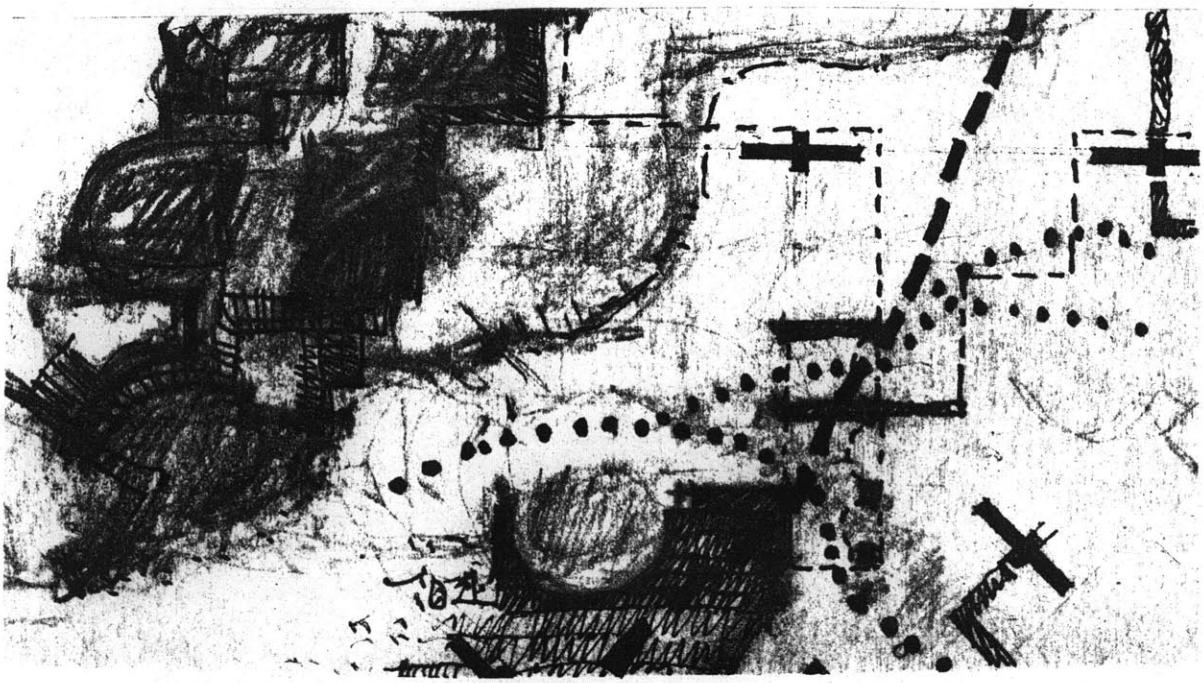


The generality is that the relationship the built and natural environment is quite interactive, yet within that generality, some harsh discontinuities should exist, in order that differences can be recognized.

The differences can also be in relative elevation, between public and private, inside and outside.







III. ASSEMBLY OF BATH

A. PROGAMMATIC ELEMENTS AND ORGANIZATIONAL CONCEPTS

From the Pioneer Health Center:

1. Health promotive activity oriented around a swimming bath.
2. Health providers integrated with rest of facility.

From the Wellness Resource Center:

1. Hot baths represent shared service utilized by health providers in stress reduction: the hospital of the medical office building becomes the bath of the health promotive functions.
2. Provider and educative elements housed in office space that offers a range of definitions more comparable to domestic structures than current medical offices.
3. Educative functions include instruction in exercise, dance, as well as a library and spaces of various sizes for public assembly: seminars, lectures, etc.

From the ancient baths:

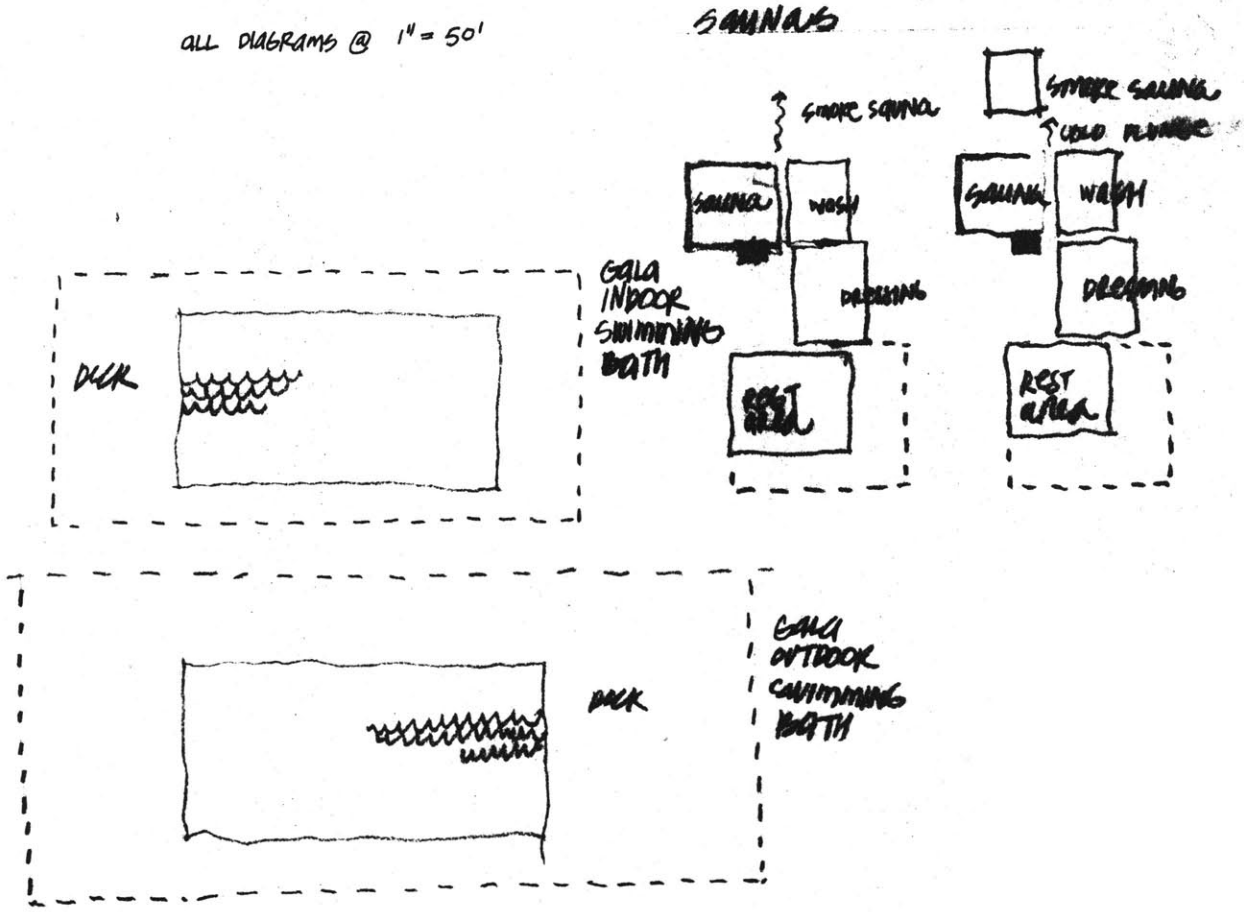
1. Larger centralized bathing activities, to perform a similar broad cultural regenerative role.
2. Hot baths, large piscina, areas for exercise, repose, massage -- staffed by those involved in health promotion activities. A whole-health analog to the traditional doctor-hospital relationship.
3. Baths integrated with other civic functions: commercial activity, theatre, entertainment, restaurant.

4. Bath incorporated in park-like setting.

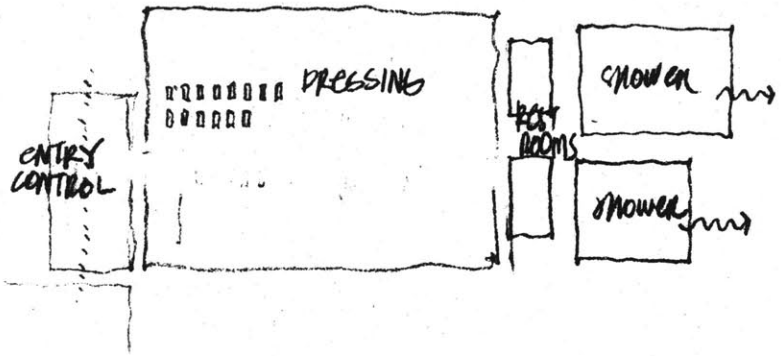
From Finnish, contemporary baths:

1. In addition to centralized bathing activity, decentralized sweat baths present with own support facilities.
2. Opportunities for bathing in river, pond, and snow on seasonal basis.
3. Diving pool, indoor and outdoor swimming pools.

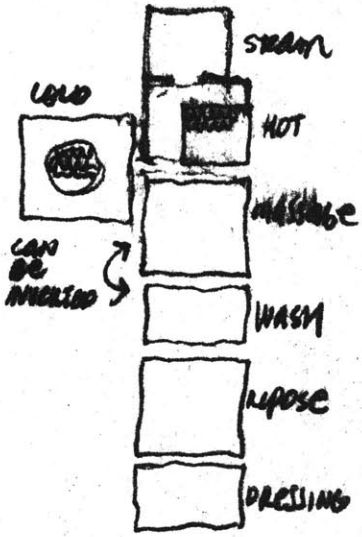
The overall size of the facility is based on a medium-sized public swimming pool complex, more detailed programmatic elements borrowed from existing buildings:



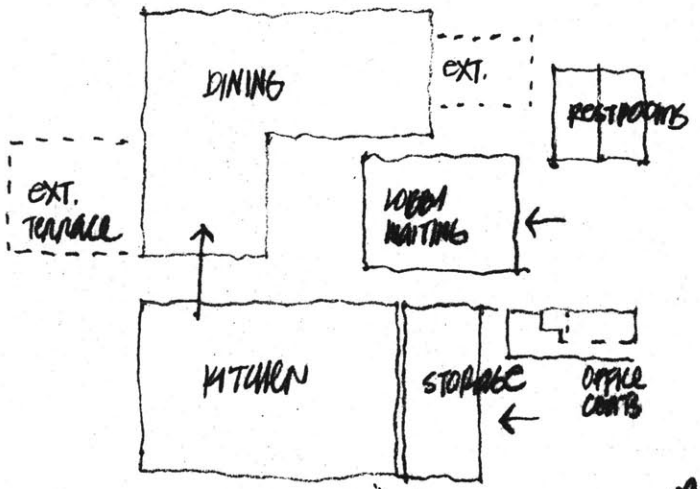
BATHS - DRESSING



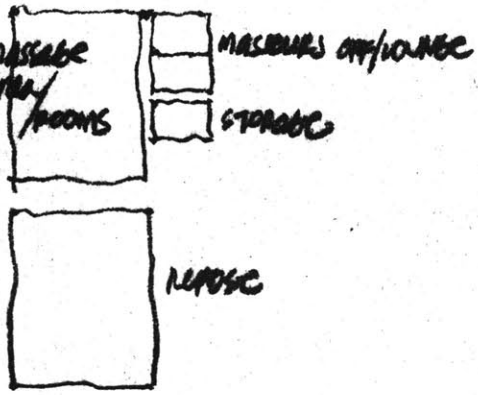
STEAM BATHS

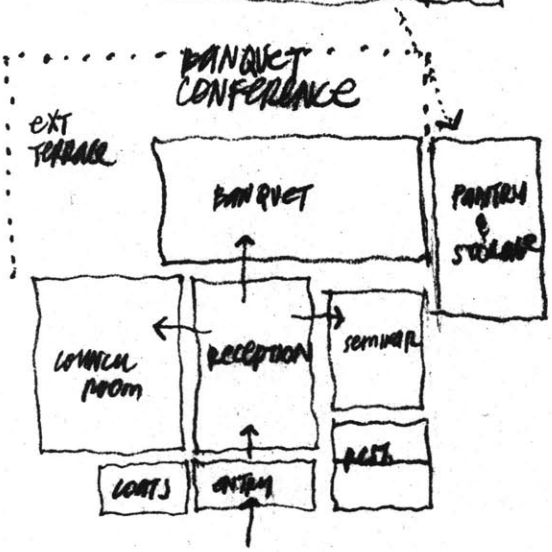


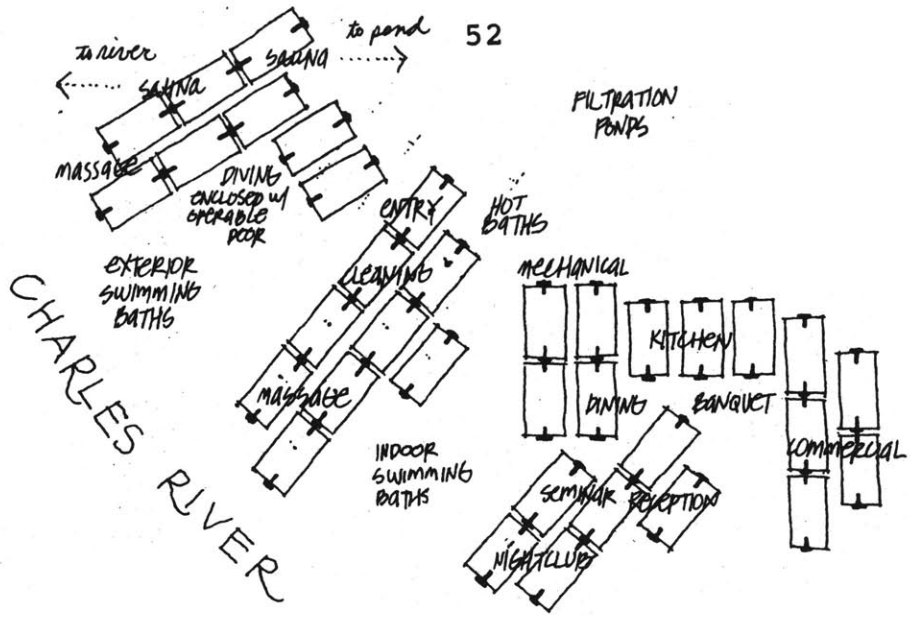
RESTAURANT



MASSAGE







Filtering, heating, cooling of the water takes place at a centralized point, where in the summer the "cooling tower" that dumps heat from the rest of the building is also a bath.

A series of ponds behind the bath is the first stage of water treatment that allows river water to be utilized.

B. SITE

The site for the design exploration is on the Charles River in Newton, near the intersection of the Massachusetts Turnpike and Route 128. Directly adjacent to Norumbega Park, the site was at one time occupied by an amusement park, and is currently abutted by a large hotel. Historically and presently characterized by fairly intense activity, during the spring of 1977 it was purchased by the City of Newton and is now being slated for a wilderness park, responding to federal monies available. The site suits the exploration in the following ways:

1. Proximity of hotel offers a large body of possible clients.
2. Hotel could provide accomodations for those attending gatherings at the baths.
3. Hotel and baths could share parking facilities.
4. The site has an historical precedent for intense recreational activity in the amusement park.
5. Ostensibly swimable by 1985, the river itself could be used for some bathing activities.

In terms of service area, size of facility, and location within the city, the thermae (as opposed to balneum) of ancient Rome is the most direct analogy.


CHARLES RIVER

C. BUILDING SYSTEM

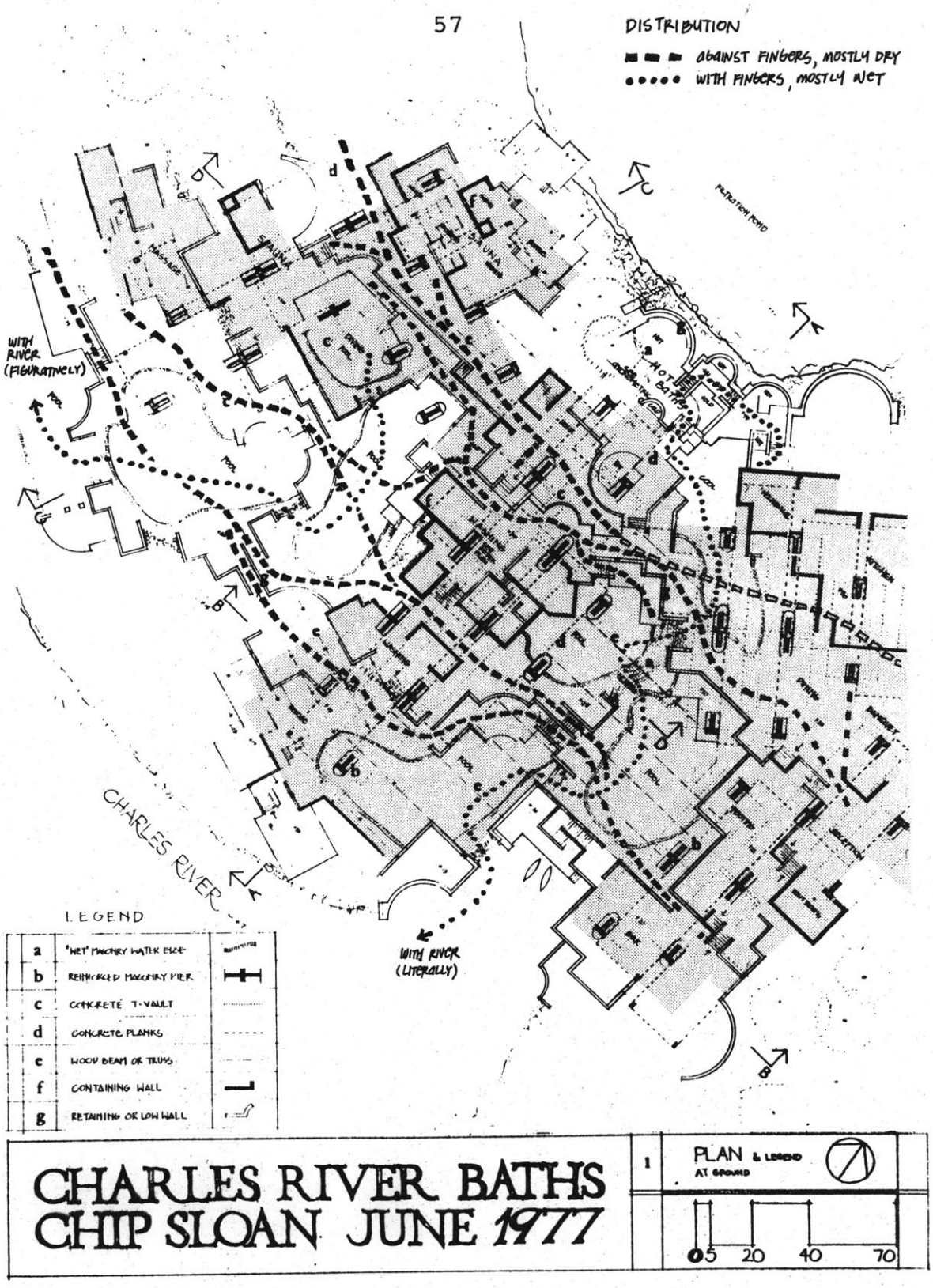
The building has three major structural components:

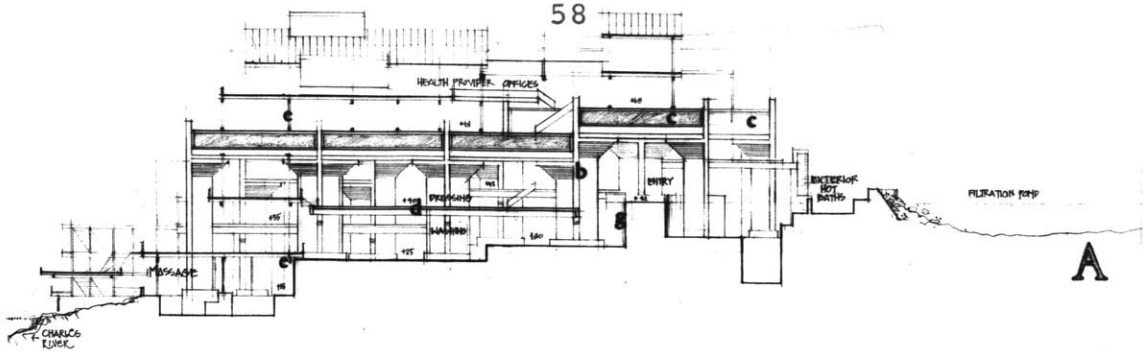
1. 18' x 36' concrete shell, poured-in-place tied pairs of 1/2 barrel vaults, supported by reinforced brick piers. The shell approximates a T-section, and is located on 24-foot centers. The 6-foot spaces in between (when the sections are on the same elevation) are often filled with a concrete and glass block reinforced slab.
2. Prestressed concrete planks and beams. The piers that support the concrete sections also carry the beams that support these intermediate floor levels. The concrete planks can also be carried by secondary bearing walls or beams.
3. Timber system. This system provides the principle closure of the building, as well as other intermediate floors. Walls are of 4" x 4" stud construction. Atop the concrete sections, the walls comprise virtual trusses that transfer loads to the section along the plate line, or in fact span between sections. Other construction can be suspended from this framework, from the section itself, or supported from below by post and beam or bearing wall.

CHARLES RIVER BATHS
CHIP SLOAN JUNE 1977

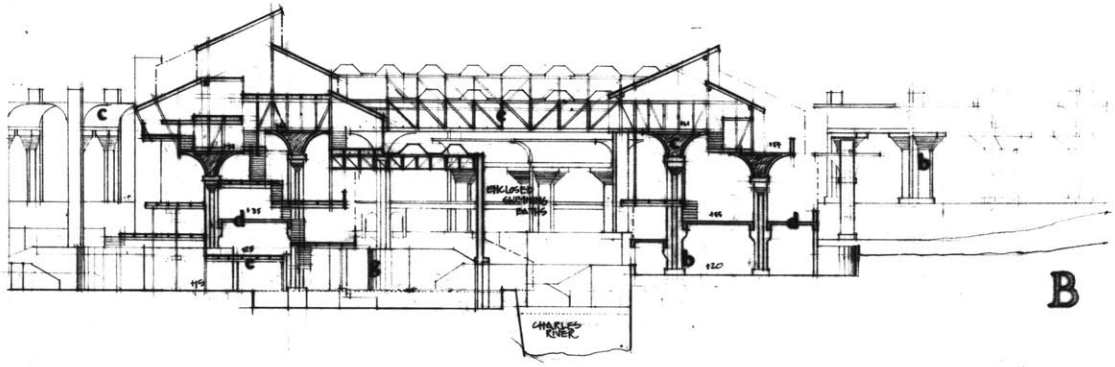
1 PLAN & LEGEND AT GROUND

0 5 20 40 70

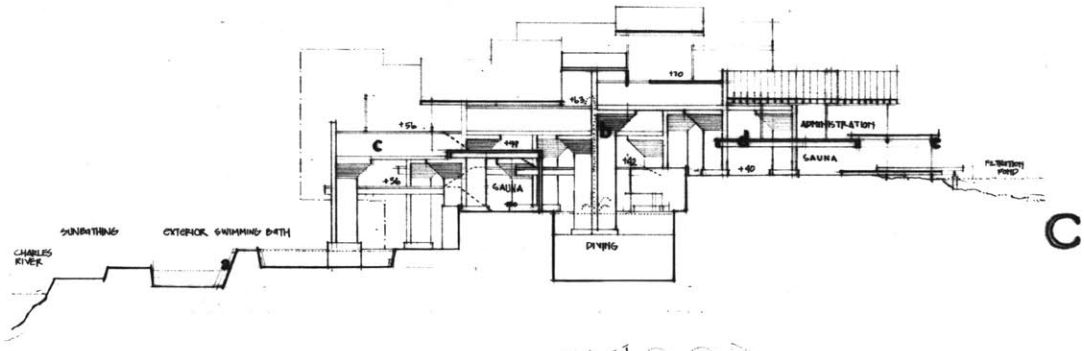

DISTRIBUTION
AGAINST FINGERS, MOSTLY DRY
WITH FINGERS, MOSTLY WET
WITH RIVER (FIGURATIVELY)
WITH RIVER (LITERALLY)
CHARLES RIVER
PLEASANT STREET
HOT BATHS
SAUNA
MASSAGE
LEGEND
a 'WET' MASONRY WATER EDGE
b REINFORCED MASONRY PIER
c CONCRETE T-VAULT
d CONCRETE PLANKS
e WOOD BEAM OR TRUSS
f CONTAINING WALL
g RETAINING OR LOW WALL
CHARLES RIVER BATHS
CHIP SLOAN JUNE 1977
1
PLAN & LEGEND AT GROUND
5 20 40 70



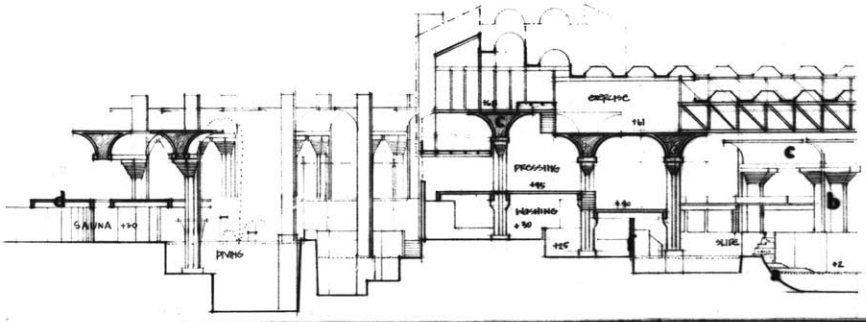
A



B



C

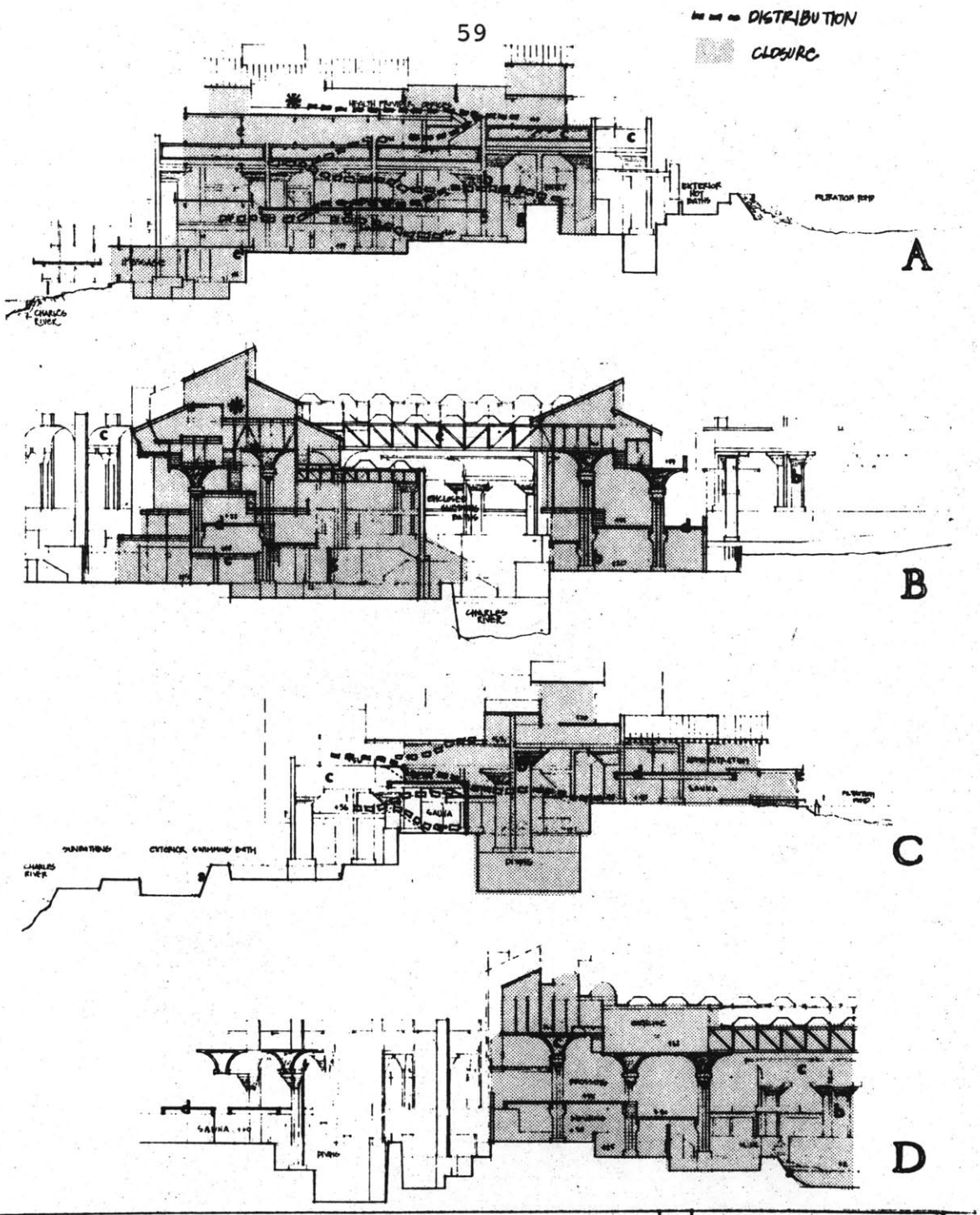


D

CHARLES RIVER BATHS
CHIP SLOAN JUNE 1977

2 SECTIONS

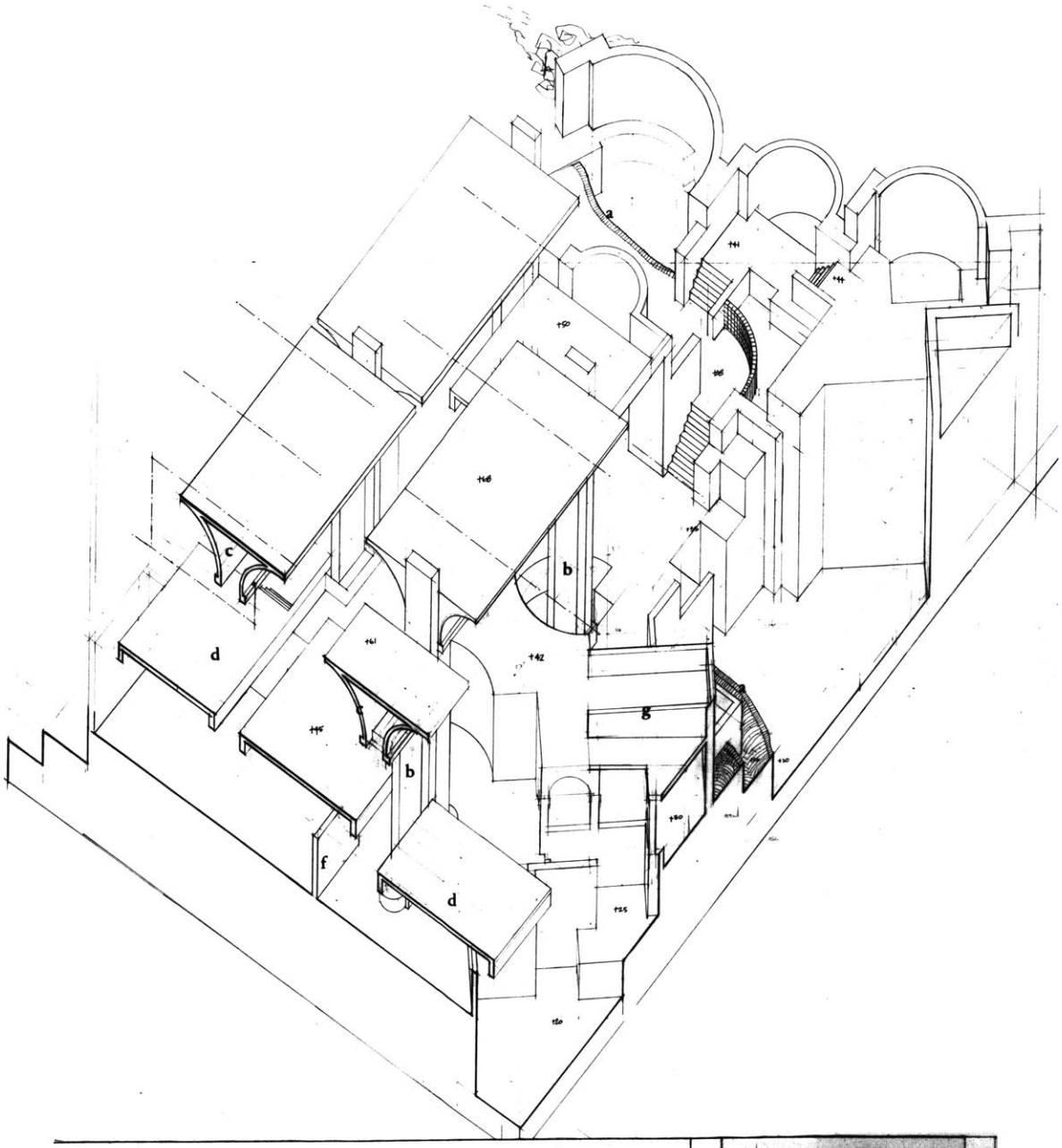
0 5 20 40 70



CHARLES RIVER BATHS
CHIP SLOAN JUNE 1977

2 SECTIONS

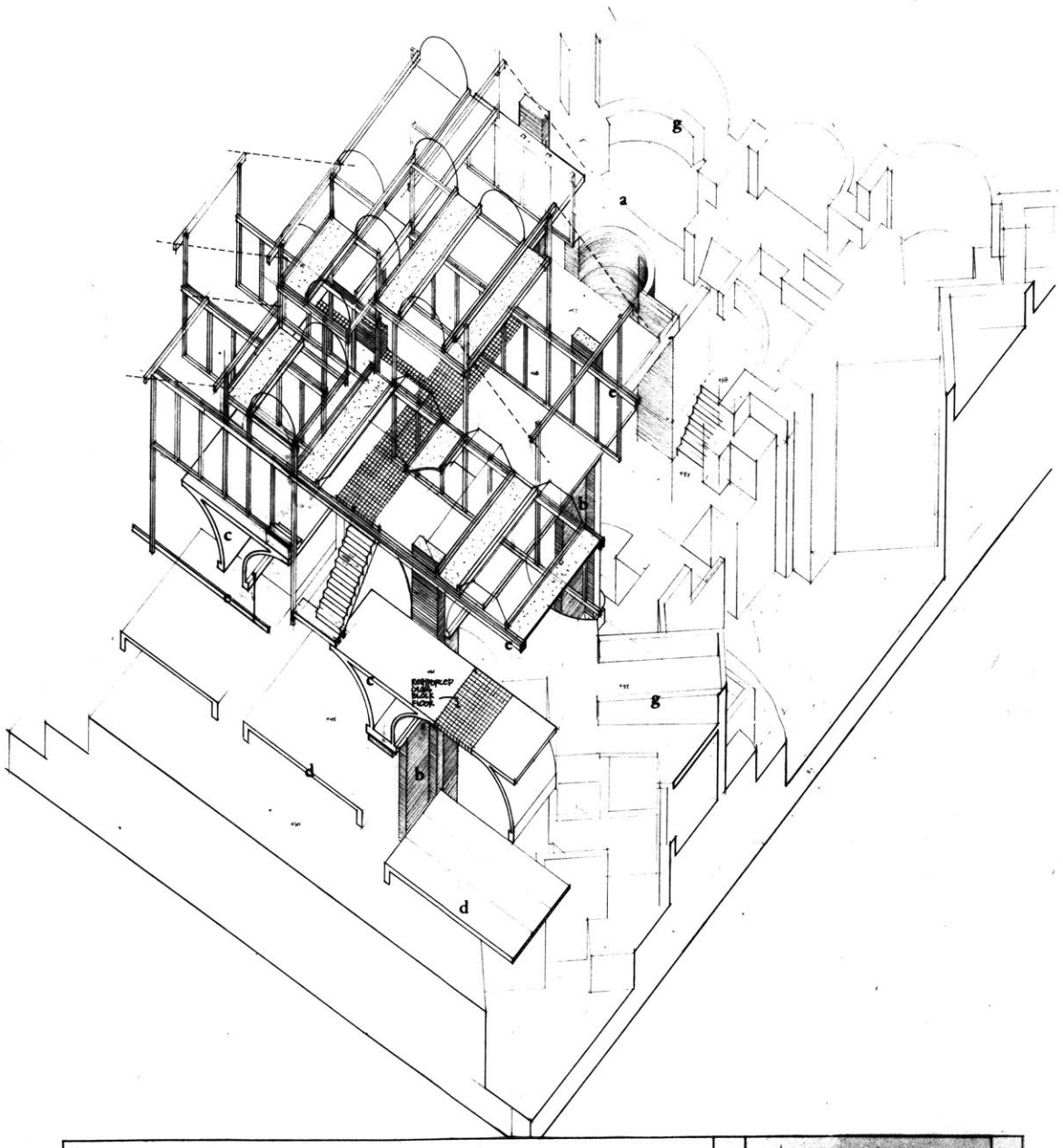
0 5 20 40 70



CHARLES RIVER BATHS
CHIP SLOAN JUNE 1977

3 AXONOMETRIC
GROUND

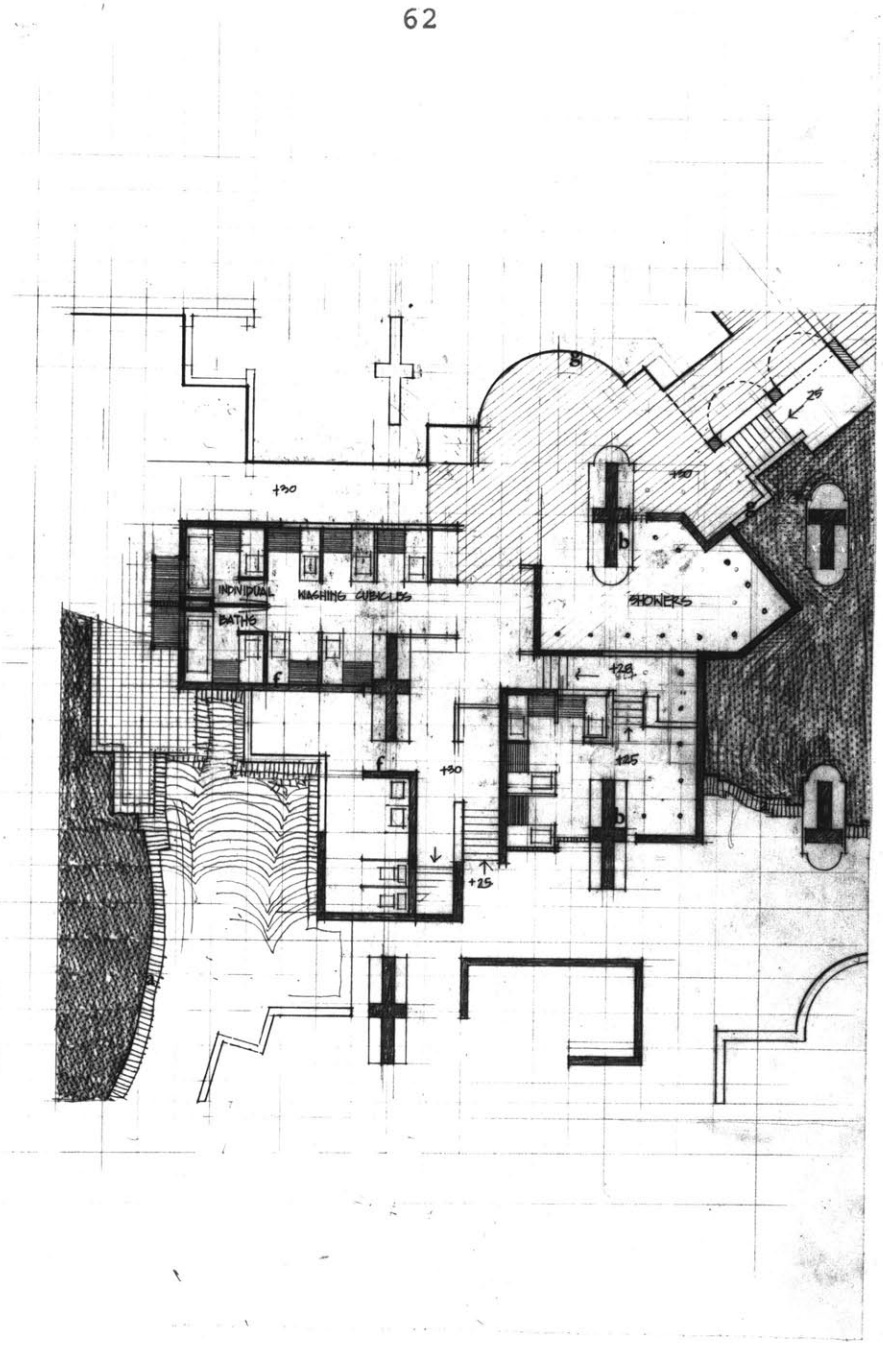
0 2 8 16 28



CHARLES RIVER BATHS
CHIP SLOAN JUNE 1977

4 AXONOMETRIC
FRAMEWORK

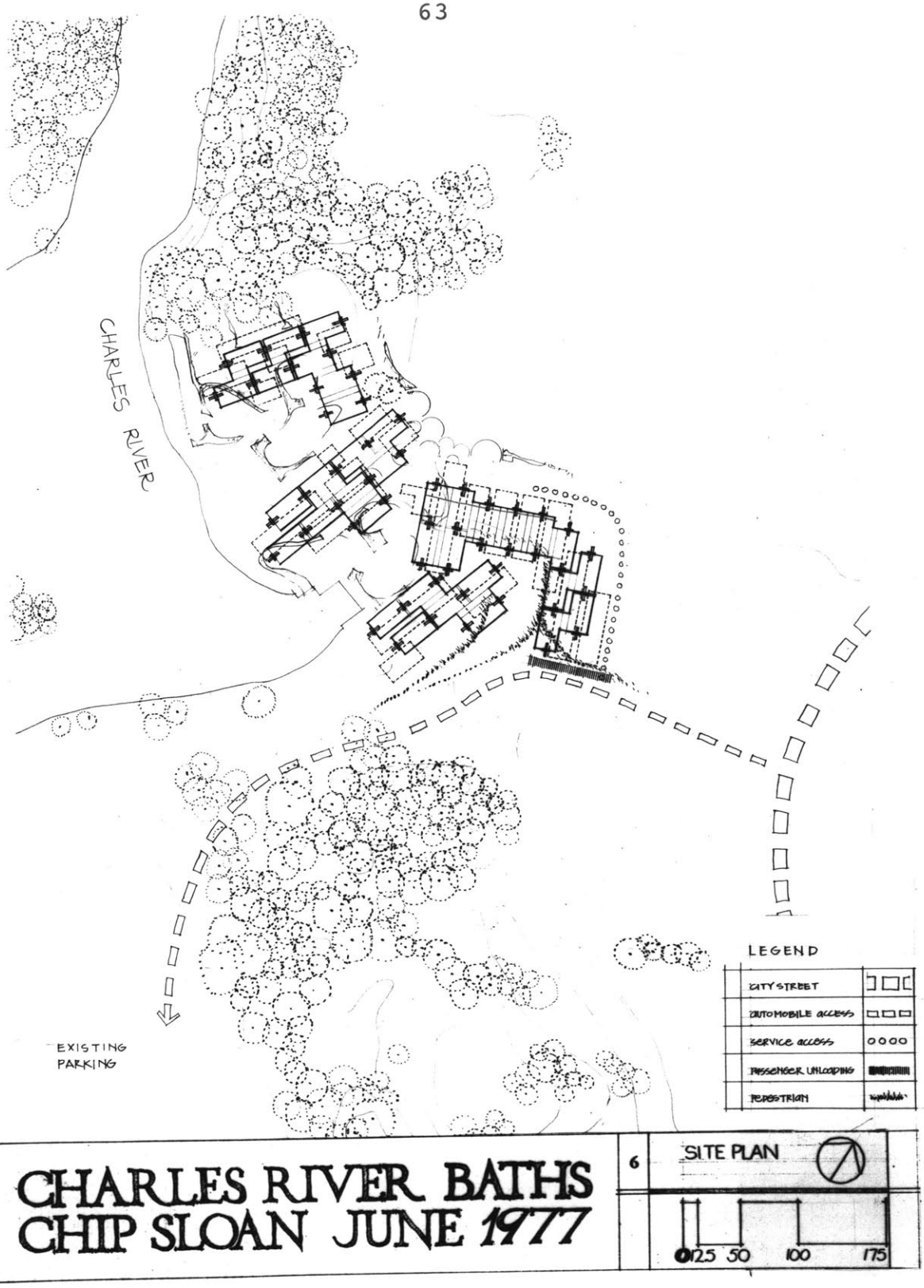
2 8 16 28

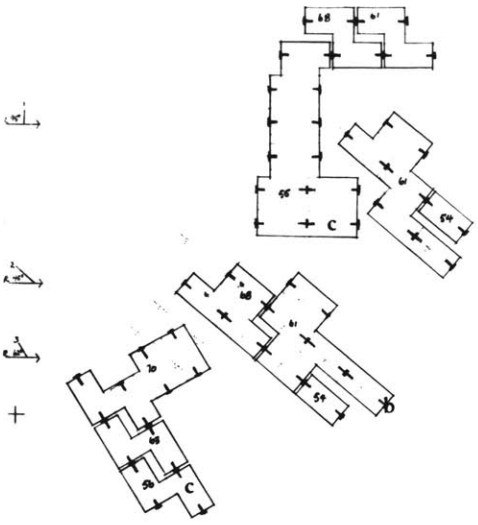


CHARLES RIVER BATHS
CHIP SLOAN JUNE 1977

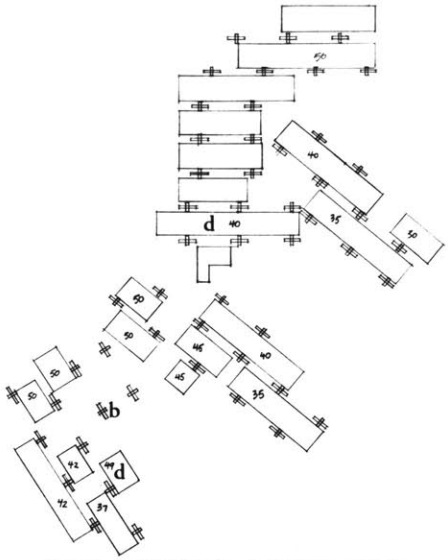
5 DETAIL PLAN
WASHING AREAS

0 2 8 16 28

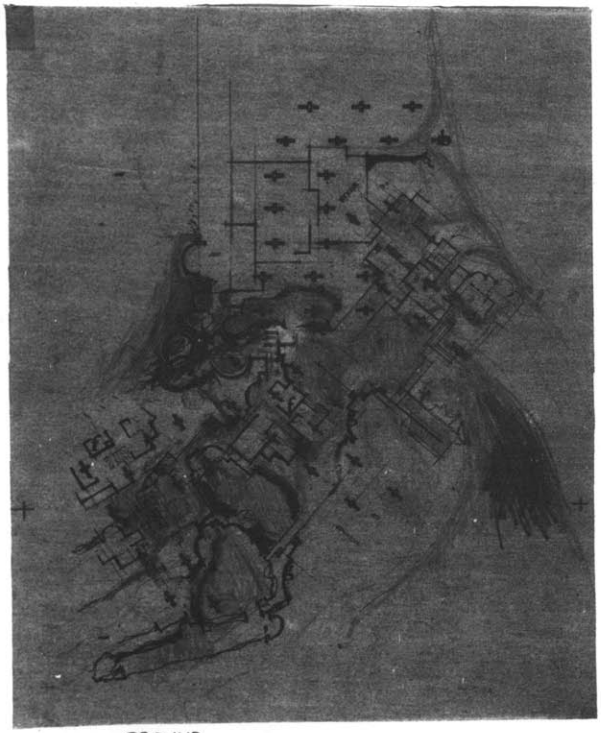

CHARLES RIVER
EXISTING PARKING
LEGEND
CITY STREET
AUTOMOBILE ACCESS
SERVICE ACCESS
PASSENGER UNLOADING
PEDESTRIAN
CHARLES RIVER BATHS
CHIP SLOAN JUNE 1977
6
SITE PLAN
0 12.5 50 100 175



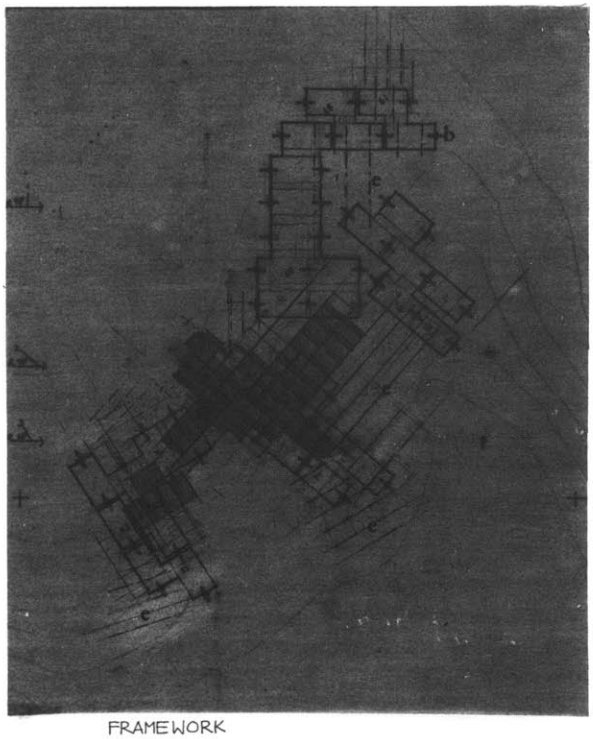
PRIMARY SYSTEM - CONCRETE T-VAULTS



SECONDARY SYSTEM - CONCRETE PLANKS



GROUND



FRAMEWORK

CHARLES RIVER BATHS
CHIP SLOAN JUNE 1977

7

DIAGRAMMATIC PLANS

0 50 100 175

FOOTNOTES

[1]Marc LaLonde A New Perspective on the Health of Canadians (Ottawa, April 1973) p. 31.

[2]Don Ardell, Antoinette B. Newman "Health Promotion: Strategies for Planning" paper presented at American Congress of Health Planners (Miami, Florida 1976) p. 45.

[3]Ibid. p. 47.

[4]Ibid. p. 51.

[5]George Leonard "California's New Health Revolution New West (Los Angeles May 10, 1976) p. 42.

[6]Don Ardell "Meet John Travis, Doctor of Well-Being" Prevention (April 1976) p. 27.

[7]Ibid. p. 28.

[8]Ardell, Newman "Health Promotion" p. 51.

[9]Ardell "Meet John Travis" p. 29

[10]Innes Pearse, Lucy Crocker The Peckham Experiment G. Allen & Unwin (London 1944) p. 18.

[11]Ibid. p. 19.

[12]Ibid. p. 79.

[13]Ibid.

[14]Ibid. p. 278

[15]Ibid.

[16]Ibid. p. 280

[17]Ibid. p. 40.

[18]Ibid. p. 68.

[19]John Travis "Wellness Resource Center" promotional literature.

[20]Leonard "Health Revolution" p. 42.

[21]Ibid. p. 43.

[22]Ardell "Meet John Travis" p. 30.

[23]Leonard "Health Revolution" p. 48.

[24]Webster's New World Dictionary (New York: World Publishing Co. 1966).

[25]Sigfried Gideon "Mechanization of the Bath" Architectural Review (Oct., 1947) p. 119.

[26]Paul Gerhard Modern Baths and Bath Houses (Boston: Stanhope Press 1908) p. 16.

[27]Gideon "Mechanization of the Bath" p. 119.

[28]Gerhard Modern Baths p. 215.

[29]Allan Konya Finnish Sauna (New York: Halsted Press 1973).

[30]Gerhard "Modern Baths" p. 17.

[31]Dietrich Fabian Bader, Handbuch fur Baderbau und Badwesen (Munchen: Verlag Georg D.W. Callwey, 1960) p. 12.

[32]Ibid. p. 13.

[33]Fikret Yegul "The Bath Gymnasium Complex in Asia Minor During the Imperial Roman Age" dissertation presented to Harvard University (Rome, February, 1971) p.

[34]Ibid.

[35]Ibid.

[36]Yegul "The Bath-Gymnasium Complex"

[37]Gideon "Mechanization of the Bath" p. 119.

[38]Gerhard Modern Baths p. 3.

[39]Jerome Careapino Daily Life in Ancient Rome (New Haven: Yale University Press 1941) p. 254.

[40]Yegul "The Bath Gymnasium Complex"

[41]Ibid. p. 207.

[42]Carcapino Daily Life in Ancient Rome p. 256.

[43]Ibid. p. 255.

[44]Gideon "Mechanization of the Bath" p. 119.

[45]Yegul "The Bath Gymnasium Complex" p. 208.

[46]Giedeon "Mechanization of the Bath" p. 119.

[47]Ibid. p. 120.

[48]Ibid. p. 120.

[49]Gerhard Modern Baths p. 73.

[50]Konya The Finish Sauna p. 21.

[51]William Giezentanner Charles River Pathway Plan (Newton, Mass. 1975) p. 55.

BIBILIOGRAPHY

Health Promotion

Don Ardell, Antoinette B. Newman "Health Promotion: Strategies for Planing" paper presented at American Congress of Health Planners; Miami, Florida 1976.

Don Ardell, "Meet John Travis, Doctor of Well-being" Prevention April 1976.

Marc LaLonde A New Perspective on the Health of Canadians Ottawa April 1973.

George Leonard "California's New Health Revolution" New West Los Angeles May 19, 1976.

Innes Pearse, Lucy Crocker The Peckham Experiment G. Allen & Unwin London 1944.

Movement Through Physical Space

John Cage Silence M.I.T. Press Cambridge, Massachusetts 1976.

Gordon Cullen The Concise Townscape Van Nostrand Reinhold Co. London 1961.

Edward Fry Cubism McGraw-Hill New York 1966.

James J. Gibson Perception of the Visual World Riverside Press Cambridge 1950.

Gyorgy Kepes The Language of Vision Paul Theobald & Co. Chicago 1941.

Standish D. Lawder The Cubist Cinema New York University Press New York 1975.

Kevin Lynch, Donald Appleyard, John Myer The View from the Road M.I.T. Press Cambridge, Massachusetts 1964.

Films

Fernand Leger "Ballet Mecanique"

Dziga Vertov "Man with a Movie Camera"

Baths, Ancient and Modern

Jerome Carcopino Daily Life in Ancient Rome Yale University Press New Haven 1940.

Barry Cunliffe Roman Bath Discovered Routledge and Kegan Paul London 1971.

Allan Konya Finnish Sauna Halsted Press New York 1974.

Dietrich Fabian Buder: Handbuch fur Baderbau und Badwesen Verlag Georg D.W. Callwey Munchen 1960.

Paul Gerhard Modern Baths and Bath Houses Stanhope Press Boston 1908.

Sigfried Gideon "Mechanization of the Bath" Architectural Review Oct. 1947.

Norman Neuerberg L'Architecttura delle Fontane e dei Ninfei nell'Italia Antica Gaetano Macchiaroli Editore Napoli 1965.

Klaus P. Scheid Sauna Verlag Georg D. W. Callwey Munchen 1962.

Vitruvius The Ten Books on Architecture Dover Publications New York 1960.

Fikret Yegul "The Bath Gymnasium Complex in Asia Minor During the Imerial Roman Age" dissertation presented to Harvard University Rome February, 1971.

General

Giampiero Aloi Ristoranti-Restaurants Milano 1971.

George Collins Antonio Gaudi Rivesta de Occidente Madrid 1968.

D. Giezentanner, Charles River Pathway Plan Newton, Massachusetts 1975.

Takenobu Mori Bruce Goff Kenchika Planning Center Tokyo 1970.

Techniques et Architecture "Thermal Baths of Biskra" Vol. 29 July 1968.

Zodiac "Works of Carlo Scarpa" No. 6.